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PRIMARY EDUCATION IN THE MADRAS PRESIDENCY.

In one of the Resolutions of the Education Commission, its sense of the great importance of Primary Education is recorded as follows:—"That while every branch of education can justly claim the fostering care of the State, it is desirable, in the present circumstances of the country, to declare the elementary education of the masses, its provision, extension and improvement to be that part of the educational system to which the strenuous efforts of the State should now be directed on a still larger measure than hitherto." This was in 1882, and we shall consider briefly how far this resolution has been given effect to in this Presidency. The problem of education in India, is not the problem of higher education, it is not even the problem of technical education, it is the problem of primary education. What India needs most is a thorough diffusion of elementary education among the people with a view to make them intelligent citizens of this vast empire. It is a noteworthy fact that the pioneers of higher education in the Presidency were guided by the

principle that the intellectual cultivation of the superior classes was of far greater importance than the education of the masses. For a long time the theory of "downward filtration"—higher education gradually descending and permeating the masses—obtained complete ascendency, and even as late in 1841, Mr. Norton, the President of the University Board, gave expression to the popular view when he remarked that "the light must touch the mountain tops before it could pierce to the levels and depths." There were individuals no doubt, here and there who protested strongly against this view, and who argued in favour of the broader basis of solid elementary education, chiefly through the vernacular languages, but it was not till after the receipt of the Despatch of 1854 that any substantial efforts were made to reach the masses. We do not for a moment under-estimate the advantages of higher education, but we are convinced that a system which contemplates only the imparting of a high measure of education to a few, exclusively through the medium of English, must fail to poduce any great or general effect upon the national mind. Before anything permanent can be effected in any country a wide basis of a solid, though limited education, through the means of the vernacular languages, must be given to the masses. It is upon such a broad basis alone that the superstructure of a high standard of refined education can be raised, and the superior acquirements of the few very highly educated be made to tell upon and influence society. It is a matter for thankfulness that the "downward filtration" theory has been entirely discredited within recent years by the friends of educational progress in India. The Education Commission accentuated the importance of primary education, and though there is still much room for improvement, it is encouraging to note the strenuous efforts that have been made to promote education among the masses in this Presidency by Government and other agencies.

We stated above that the early efforts to promote primary education in this Presidency were far from satisfactory, and that it was only after the Despatch of 1854 that anything definite was attempted in the matter of directly promoting primary education; but it must be noted at the same time that no tangible results were achieved until after the grant-in-aid system was fully developed and put into effective working order. It was on the 1st January 1868 that a new and improved scheme of results grants

was introduced, and from that date Primary education has made rapid and continuous progress. In the first year 494 schools were added on the system of payment by results, in the next 1,065 and in the third 1,606. One of the marked features of the history of Primary education in the Madras Presidency is its dependence upon non-departmental agencies. The present system which rests mainly upon private enterprise, without altogether neglecting the direct instrumentality of the Department, was founded, as stated above, in 1868. It was consolidated in 1871, and has been systematically persevered in and improved upon till now, and it is needless to say that in the development of this system the grant-in-aid code has played no insignificant part. We are aware of the complaints made by managers of schools against the complicated nature of the Madras Code, but this complicacy, it must be remembered, is to a great extent inevitable, for the grant-in-aid system has grown to be what it is by a natural process of evolution, so as to meet the needs of a rapidly developed system of primary education.

Another remarkable feature of Primary Education in this Presidency is the part that Local Boards have taken in it. Local and Municipal Boards have been induced to take no insignificant part in the direct management of Primary schools. Considering the evanescent character of results schools under purely native management, the establishment of Board schools, chiefly on the salary results system, has been one of the effective means of promoting Primary Education, especially in backward districts. At present the primary schools maintained by government are chiefly confined to the Agency tracts. The policy of the Department has also been to improve indigenous schools so as to make them qualify for departmental aid. The policy in Bengal has been more to incorporate indigenous schools into the departmental system, but in this province the department has insisted upon raising indigenous schools out of their traditional indifference to a level with the progressive wants of society. This task has by no means been an easy one. "The transition of an indigenous private school," says Dr. Duncan, "to the status of an unaided school which is the first change it undergoes, is not so easy as might be supposed. Frequent visits must be made by the inspecting schoolmaster before he succeeds in prevailing upon the teacher to make the least

movement towards the recognition of his school. Not only the village teachers, but the villagers themselves, have to be made to understand the advantages to be derived from placing their schools under departmental control, with the prospect of ultimately receiving aid from public funds. . . . But the difficulties are not at an end when once an indigenous school is brought under inspection. Many of the initial difficulties still remain and fresh ones arise. It may be that the villagers do not approve of their children being taught to read printed books to the neglect of cadjans. If so, nothing is more likely to dry up the fountains of their liberality in the matter of remuneration than this breach with time-honoured custom. The teacher now finds himself in an unenviable position. He has broken with the old ways too far to make it expedient to go back, while he has not gone far enough on the new path to make his future course at all reassuring. Sometimes he temporises, teaching from printed books in the new methods in order to satisfy the inspecting officers and from cadjans on the indigenous methods with a view to keep favour with his constituents. At this stage, as in the previous and subsequent stages of his development, from the condition of indigenous to that of public schoolmaster, the village teacher stands in the utmost need of all the help which the trained intelligence, the prudent counsel and sympathetic encouragement of inspecting officers can afford him."

Primary Education, as our readers are aware, comprises two stages, the upper primary stage and the lower primary stage. The lower primary stage, which ends with the third standard, affords hardly any scope for the mastery of even the three *R.'s*, and yet the majority of pupils have for years past been content with this stage and have not gone on to the next higher stage. How to make those who enter upon a course of primary education cross the rubicon of the third standard and pass on to the upper primary standard has been the problem which the educational authorities have had to solve? And this problem has, we are glad to find, been faced successfully by them. In 1889, an examination, known as the Primary School Examination, was introduced and was declared to be a compulsory test for admission to the Public service in respect of all appointments under Rs. 15 per mensem. The subjects of the examination are almost identical with that of the Fourth standard. One of the beneficial results that has resulted

from the institution of this examination is the larger proportion of pupils that have continued up to the Fourth standard. The total number of pupils (boys and girls) in the upper primary stage have increased from 27,751 in 1889 to 41,377 in 1894. In the year 1894-95, 27,234 male and 1,765 female candidates presented themselves for this examination. Of the 27,234 male candidates, 22,325 were "Pupil candidates," 1,942 "Teacher candidates," and 2967 "Private candidates." Over 7,000 were above the age of 15. The Primary School examination affords a striking instance of the successful application of what has been termed "the stimulating effect of examination" to promote education. This examination, as stated by Dr. Duncan, has also had the effect of raising up a more efficient and sympathetic class of village officials to whom the friends of education can look for co-operation and substantial assistance.

We have noted above some of the encouraging features of Primary education in this Presidency, but in doing so we have not overlooked the directions in which there is still room for improvement. We are of opinion that the quality of instruction given in Primary schools stands in need of improvement considerably. In the majority of boys' schools the Kindergarten system of education is utterly unknown, the instruction partaking more or less of a routine, mechanical nature. The absence of qualified teachers has also been one of the chief obstacles to the progress of Primary education. This defect is to some extent being met by Government Training schools and Sessional schools, but we should like to see Sessional schools more largely established throughout the Presidency. In the matter of the diffusion of Primary education also there is still much left to be done; but we have no doubt that these and other drawbacks are meeting with the sympathetic consideration of the educational authorities, and with Dr. Duncan, who has always been an enthusiastic supporter of Primary education, at the head of the Department, we have reason to think that the Madras Presidency will soon stand foremost among the Indian Provinces in the matter of Primary education.

COALITION GOVERNMENTS.

By H. J. Allen, M. A.

For the student of politics coalition governments must always possess a certain degree of interest; they at once carry his thoughts to the past, and lift them forward among the dreams of a possible future. Government by party in the strict sense has not had a long history in England, scarcely more than a century and a half, if we date it from the days of Walpole; of its existence elsewhere than in England the period is of course considerably shorter. Yet to what an amount of discussion it has given rise! Whatever our opinion of the system may be we must at least acknowledge that it has been a perfect godsend to debating societies and examiners in search of a subject. "Breathes there a man with a soul so dead" that he has not taken the floor of his college debating hall in defence or opposition? How one envies the original examiner his self-congratulatory glow, when, seeking for "fresh fields and pastures new," he first hit upon "the advantages and disadvantages of Party Government" as an essay subject. Yet, however necessary we may believe the system to have been in the development of constitutional government during the last century and a half, however prepared to admit that its advantages have outweighed its evils, the wise man will be careful how he predicts for it a long, and successful future. It may well be that government by party is only a transitional stage in the history of administration; that the period of its beneficial activity, so far as England is concerned, has almost passed. It has long been a commonplace of the schools that for the successful working of the system two large homogeneous and well disciplined parties divided on broad lines are necessary; the fate of the Rosebery Government seems to show that the average man has begun to grasp the truth of this doctrine. As soon as the two great parties split up into groups and sections party government becomes a source of inefficiency, and therefore mischief. A multiplicity of parties destroys the system; the old myth is reversed, and Saturn is devoured by his children.

It is then with no ordinary feelings that the political student must regard the late elections in England. Liberal or Unionist, he must surely rejoice that a blow has been struck against government by sections. Who would wish to see repeated in England the degradation of all government, that takes place almost weekly on the other side of

the Channel? The first essential for any government is strength, and it defies human insight to see how an Administration resting on groups can possess this all important quality. Even tyrannies and reigns of terror are less ultimately mischiveous than the slow but steady sapping of authority, that must take place, where its weakness renders the government an object of contempt. Europe has had her 15th century, and India her 18th as object lessons in this truth; and despite the "administrative nihilism" of Mr. Herbert Spencer it can scarcely be necessary at this time of day to insist on it at length.

But the results of the late election have done more than in the destruction of sectional government afford a negative support to the cause of authority. In the coalition Administration with which they have replaced it they have had a positive value as well. Coalitions may be of course of various kinds; in one sense the Rosebery Ministry even might be so termed; but a powerful coalition, such as at present guides the destinies of the British Empire, is evidence of a movement away from the system of party government. It carries the thoughts of the student both backwards and forwards, as has been already said. England has not had much experience of Coalition Governments, and the next few years will be full of interest; not merely because the new Administration has the strength of an immense majority at its back; but also because it rests on a principle hitherto almost totally neglected in Parliamentary government. Different opinions may of course prevail as to how far the Liberal Unionists have become fused with the Conservative party; their position has even been compared with that of "the young lady of Riga" at the end of her ride. Yet the distribution of political offices points to the fact of a coalition, rather than a fusion; and it is not too much to say that in the Salisbury Ministry of 1895 government by coalition is on its trial.

Prior to the late elections the quotation that "England does not like coalitions" was one often on the lips of the Rosebery Cabinet. With a confidence they can scarcely have felt, and, which, if really felt, has been proved sadly at fault, they repeated this dictum of a late statesman. England in truth has not had many opportunities of expressing an opinion on the subject. The "All the Talents" Ministry of 1806 was destroyed through the hostility of George III; and the union of Whigs and Peelites under Aberdeen came to grief fifty years later over the Crimean War. On one occasion England no doubt did record a very decisive verdict against a Coalition Ministry; and during the late elections the minds of many must have gone back to the fate of the Fox and North combination of little more than a century ago.

Not a few striking points of comparison, and yet more striking contrasts might be drawn between the elections of 1895 and 1784.

If, at the close of the 19th century, the Liberal party is split up into groups, it, after all, only reproduces the phenomena of a hundred years ago; with this difference however, that faddists have replaced factionists. Where were once Bedford Whigs, Rockingham Whigs and Chatham Whigs are now the devotees of disestablishment, an eight hours day, and ærated waters. George III. had, from the moment of his accession, set himself to break up the great Whig party, that had for half a century dominated the monarchy: and the success attending his efforts proves him to have possessed capacities for political intrigue of no mean order. It was in this abeyance of Whig influence though disunion that Lord North found time to read the despatches from America, and lose the colonies. Driven from office at last, he suddenly reconciled himself with Fox—is bitterest political opponent of previous years. In their union England was taught once for all the lengths to which politicians are ready to go in the struggle for office. Joining forces they proceeded to overthrow the Shelburne Ministry, and, in spite of his pronounced hostility, offered themselves to George III. as the only possible ministers. After a grave constitutional crisis, during which for thirty-seven days there was no government in England, the King was forced to yield, and admit the hated Fox to office. Having done so he took the first opportunity of intriguing against his own ministers, and by private solicitation induced the Lords to throw out Fox's India Bill—a blow which he followed up by ignominiously dismissing the Coalition. "We are beat in the House of Lords," wrote Fox at this time, "by such treachery on the part of the King, and such meanness on the part of his friends in the House of Lords, as one could not expect either from him or them."

The situation was sufficiently serious. By unconstitutional means the Crown had overthrown its own ministers, and that too when those ministers commanded a large majority in the Commons. The two Houses were arrayed against each other, and though the Commons were still a century behind the doctrine of "ending or mending" they were determined to make government impossible until their wishes were respected. It was then that Pitt—a young man of twenty-four—came to his sovereign's assistance, and consented to form a ministry in the teeth of the angry Commons. Arrayed against him stood the formidable coalition comprising the eloquence of Fox, and the parliamentary skill of Lord North, and commanding a majority in the Lower Chamber, of nearly two to one. The struggle that followed was perhaps the most remarkable ever witnessed in Parliament.

"'A sight to make surrounding nations stare
A kingdom trusted to a schoolboy's care."

Without the aid of a single member of his Cabinet in the Lower Chamber, and relying only on his own ability, and the King's support, Pitt fought the coalition for nearly three months. During that period he was harassed by every device of an angry and disappointed Opposition bent on driving him from office. The one effective weapon he could command was his right to advise a dissolution : and the Liberal party of those days showed as lively a dread of an appeal to the people as even their modern descendants. But Pitt was in no hurry to dissolve. Disregarding the hostile votes of the Lower Chamber, and encouraged by the gradually dwindling majorities of his opponents, he waited until he felt that he had converted public opinion to his side, and then at last appealed to the constituencies. The result was a signal proof of the justness of his political judgment, Despite the efforts of the coalition, despite the celebrated Duchess of Devonshire episode, the Liberal party was almost annihilated ; about one hundred and sixty members of the late coalition lost their seats and "Fox's Martyrs" became a byeword through the country.

It is somewhat curious to think that it is for Lord Rosebery himself, the biographer of Pitt,—that fate has reserved the reverse side of the medal. History has repeated itself but—with a difference ! Once again, after a period of variance between the Two Chambers, that threatened the breakdown of our constitutional machinery, the fate of a powerful Coalition has hung on the verdict of the constituencies. Once again, the Liberal party has been almost swept away at the polls. Once again, the cause of authority has been vindicated in the return of a strong minister, with a powerful majority in both Lords and Commons. But with respect to coalitions England has shown that she can exercise a nice discrimination. The coalition of 1784, formed, as it was, by the sudden union of two political parties, that had for years been at each other's throat, rested on no principle higher than that of common lust for office ; hence it was speedily discredited, and succeeded in ultimately gaining nothing save notoriety. The Coalition of 1895 has been the gradual creation of ten years of political comradeship, dating back to the day when the Liberal Unionists renounced office, rather than sanction the Home Rule craze : it rests on the broad imperial principle, to which all Anglo-Indians at any rate must say "Amen." Now from the approving verdict of the constituencies it has received its completion, and having stood the strain of the Opposition wilderness it has been called to face the dangers of excessive prosperity. Will the enjoyment of their pro-

mised and make he heart of either leader "to wax fat and kick"? Will Lord Salisbury miss an unrivalled opportunity of reforming the Second Chamber: will Mr. Chamberlain be tempted to essay the rôle of the late Lord Randolph Churchill? Coalition government has never started under fairer auspices than at present; so far as can be seen it takes the field under clear skies, if we except some clouds on the foreign horizon. The next few years will show whether we have yet reached the stage of political development needed to make it a successful form of government. There are not wanting signs that party government is becoming discredited, and that England is passing beyond it; the old distinctions are becoming obliterated, and Whigs, Tories, Liberals, Conservatives, and Radicals will probably ere long be gathered under a single banner, to do battle with the forces of disorder, with whom the struggle of the near future has to be waged. The success of the present Administration is then a matter of the highest moment, as on it may largely depend the political movement of the future. England has proved that she has no unreasoning hostility to coalitions simply as such. Should the Salisbury Ministry of 1895 justify the confidence reposed in them, a strong inducement will be offered to repeat the experiment: and a form of government will be accredited, which, though, as yet, but little tried, may seem to some to contain a principle of salvation for the future.

SEARCH FOR DRAVIDIAN MANUSCRIPTS.

Brevity is no doubt the soul of wit; but brevity carried too closely to the "Congress" limit of five minutes for each speech, is apt to be misleading and unsatisfactory both to the speaker and his audience. The proceedings of the public meeting at the "Teachers' College Day" Celebration on the 24th ultmo seems to be a sample of too much brevity in some cases at least, and one should like to have given more time to some of the respondents to the toasts proposed at the public meeting, to enable the rising generation of teachers to learn more about their sphere of work from those who have watched the educational progress and literary activity of the country for many years past, especially as to what they think of the hopes of the present generation, and the best mode of securing their fulfilment, and what the present needs of the nation are, and the best way of proceeding in any great national work. In response to the toasts proposed, one of the native guests—Rao Bahadur V. Krishnamachariar—drew attention to the importance of "regarding Education from a national standpoint or shaping our educational system according

to our own national instincts and environment," and next touched upon another new point in connection with the "forgotten literature of the country" and the service which the thoughtful section of the Dravidian teachers can render without difficulty to the great cause of rescuing from decay many valuable relics in the shape of MSS. which are worth preserving. For our own part we should like to have heard all that Mr. Krishnamachariar with his experience had to tell to the rising race of teachers and graduates assembled at the Teachers' College, as to the best mode of reviving the forgotten literature of the country, and the service which native teachers can render to save the valuable but vanishing literary remains, and tap those sources which need exploring. No doubt the Government has done much in this exploring work but our great body of native teachers employed at the many centres of education in the provinces may as well strive to do what they can to promote this great national work. What is wanted, says Mr. Krishnamachariar, is the general revival of interest in the Dravidian literature of Southern India, —not a burst of excitement but a real awakening among teachers and lovers of literature and the various literary associations and Mutual Improvement Societies of which they may become members. Now, if never before for the past few centuries, let those who are loyal to their country's literature be up and doing. Two things are true of those who are trained and sent out into the country as teachers: *first* they have need of literature and *secondly* literature has need of them. It serves them in their profession, and they had better therefore save it from decay in this perishing land.

As an instance may be mentioned the case of *Bharata Venba*, a well known Matriculation Text, in regard to which there is a fact not generally known. Only a small portion of this popular work containing some true poetic thought with rhythm and rhyme of the classic period of the Tamil land has been ever printed, *viz.*, the Udyoga Purvam, and a part of the next book, a MS. copy of which is found in the Government Oriental MSS. Library in Fort St George; but the first four interesting books and the instructive chapters following that on the Bharata war cannot be had for love or for money anywhere in the Tamil country. What became of the missing leaves in the MS. copy at the Government Library none can tell except the old Librarians whom none are able to pursue to the other world. The only source from which this rare relic of a popular Tamil poem can possibly be rescued is the bundle of cadjan books frequently to be found hung up near the roofs as useless lumber in the houses of old Pandits who passed away during the first half of the present century. Time was when nearly every village had a Pandit or

two, and every Pandit had a bundle of Cadjan books for perusal or for reference, but now the difficulty is to find such MSS. and even to find the sons and grandsons of those old scholars and teachers and village accountants that can read the legacy of MSS. handed down to them or tell their contents, the mania for a knowledge of English as the bread winning and gown winning language of the present day having proved so tyrannous as to set aside the MSS. as valueless in their eyes. We have in fact no means of knowing what MSS. are in existence; and it is now our conviction that much exploring work can be executed by the body of graduates and others who pass out of the Teachers' College annually, and proceed to mofussil school stations. If each of them would make it a point to discover who the old Pandits were and what MSS. books exist in their homes in a neglected condition then search would not go altogether in vain. If, however, they won't think kindly of this matter when they have opportunities to think of it, and if none of the intelligent teachers and lovers of native literature who ought to be the true and loyal students of such literary remains would take any interest in the search we insist upon as a great national work, such rare relics would be lost for ever. On the other hand if the rising race of teachers try to rescue what is now buried in oblivion and to save even what is half eaten by "poochies", with a view to compare and collate them we are sure that some of the teachers would be able to get a living out of this search for rare but useful MSS. There is a great demand both in this country and in Europe for such literature but it is scarcely responded to, the weight of indifference being far too heavy to spur on our teachers.

There can only be one result of the present policy of indifference or deliberate neglect or hatred of everything national like the present. We have all read of the Parliament of Religions assembled at the Chicago Exhibition two years ago, and none need be ashamed of the distinguished place given to the religion of India in that assembly in America. If a similar assembly of literary persons of the world was got up, the descendants of the old Aryan Dravidians who were a lettered people from prehistoric times, would perhaps have to take not merely a back seat, to use a vulgar slang, but the last seat or no seat at all in such an assembly.

UNDERGRADUATE RESPONSIBILITIES.*

I feel I ought to apologise at the outset for not having written out my address. I did try to write it out, and I have somewhere upstairs

* An address delivered on the occasion of the Anniversary Meeting of the Madras University Union on the 4th December 1895 by J. H. Stone, M. A.

about thirty sheets of foolscap, specimens, as Beau Brummel's valet, I believe, would say, of my failures. I have, therefore, been reduced to the expedient of preparing some notes from which I will try to make a few rambling remarks, and I hope for your sake that these notes will keep me in the direct path. Neither have I announced the subject of my address, because I could not at first think of one. The gentleman who broached the matter of my delivering a speech this evening came at an inopportune moment. He had certainly read the play of "Coriolanus," but he omitted to profit by the practical advice given there, not to "take" a man in a priest-like fast" but to wait till "the veins and conduits of the body are filled with wine and feeding." He took me when I was suffering from "a priest-like fast," and I then felt I could have nothing to say to the Union. Since then I confess certain topics have occurred to me, but to tell you the truth I rather shrink from telling you in so many words what I propose talking about, because to do so would I fear give an air of futility to these proceedings that one would if possible avoid. I remember somewhere to have read an Oriental apologue of a reverend Moollah of great but undeserved reputation, who addressed his congregation in these words: "Which of you, my brethren, is already acquainted with the topic of my discourse?" The people answered with one voice, "None of us, revered one, can possibly know thy topic." "Then what is the use of my speaking to such dolts," said the Moollah, in pretended anger, and so for that occasion avoided the necessity of exposing his shallow incompetence. The time for a sermon came round again, and once more the Moollah put the same question. The people, anxious to please, naturally shouted that they knew all about the matter, and so gave the astute speaker a second opportunity of retiring gracefully. On the third Friday, if that be the day on which it is fit that good Mahomedans hear sermons, the Moollah put his question once more. This time the congregation had elected a representative of grave aspect and clear enunciation, who rose and said: "Half of us, my father, are acquainted with the subject of thy discourse and half of us are altogether ignorant of it." This gave the Moollah his final opportunity. "Let the half that knows instruct the half that does not," said he, and left the place. I believe he was never again asked to deliver any sermon, anniversary address, or speech of any kind, but continued to enjoy a vast reputation for theological knowledge and oratorical powers.

Now I feel that announcing my subject would be pretty much tantamount to inviting the half of the University Union that knows, to instruct the half that does not know, and that having thrown it, as it

were, into the midst of this assembly, I might sit down, confident of your being able under Colonel Pennycuick's guidance to dispose of it by way of discussion. Not to beat about the bush any longer, I propose to talk about the University, some of its defects and how they may be remedied. This is a subject which is a good deal in the air just now, and that not only in Madras, but in other parts of India, and my only excuse for selecting it is the hope that I may be able to approach it from a novel standpoint.

I will begin by attempting to define "the University." What is it? Most people asked a similar question would probably turn to the Madras University Calendar and the Act of Incorporation, where they would learn in somewhat stately language that certain persons are incorporated to constitute the University and would find the names of many, I fear for the most part forgotten, worthies who were the first Chancellor, Vice-Chancellor and Fellows. They were the University and their successors to-day are the University. Perhaps it is due to my Cambridge training, but this by no means satisfies me as being a complete statement of what constitutes the University. I daresay some of you have heard that there are persons sufficiently daring to suggest that the University is in need of reform, and when University reform is talked about, it either has reference to some change in the machinery for governing the University, or it is some proposal to enlarge the sphere of work and the facilities afforded by the University. It is a proposal to enlarge the Syndicate, or to print the minutes of its proceedings, or to form a Library, or to establish University Professorships, or to improve the methods of conducting examinations. All these are important and some are doubtless desirable things and are worth discussion; but as I said before, my Cambridge training has led me to think about the University in a very different way, and the question of University reform presents itself to me in a different light. When I matriculated at Cambridge I was given to understand that I had become a member of the University, and I do not see why in Madras you should not so regard yourselves. Therefore, I think that all students from matriculates upwards, are members of the University, and as such I mean to speak to you to-night. It might be thought that because I have said that undergraduates are members of the University, therefore they ought to have a voice in University affairs. I have no such idea whatever. I am not going into the matter now; I only mention it to avoid possibility of misconception. But what I would point out and insist on is that as a consequence of your being members of the University you have responsibilities towards

the University. I think I may go further, and it would be true to say that the University will be what you make it. I must confess that this is not an original idea of mine. The suggestion was thrown out by a student at a meeting the other day, and I have thought a good deal about it since, and have come to feel that there is much truth in the idea. I will admit that the intellect of the University, the guiding and judging power, is in the Senate; but something also rests with the undergraduates themselves quite as important as the intellect or guiding power. It is what I might call the soul or spirit of the University. And since it cannot but be that this soul or spirit should exert influence, though an indirect one, on the management of university affairs, the kind of spirit existing among the undergraduates of the University is of the highest importance.

Let us glance a moment away from the Madras University, and see how the other Universities have been formed; how, in fact, the typical Universities as we now know them have come into existence. In the Middle Ages you will find that Universities were not the result of action from above, not because Kings or Popes willed it, were there Universities. The University of Paris, for instance, had its origin in the Cathedral School of Paris. As the school expanded a mass of students assembled, and with the increase of students came an increase in irregular outside teachers, the greatest of whom was Abelard, who was much abused in his day for dubbing himself a Doctor of Theology. These irregular outside teachers attracted more and more students, till at last they had such a mass of unruly students, that it was felt that some sort of organisation was necessary for order. This feeling resulted in the "Four Nations" of the University of Paris, each with its own proctors, and, later, in the establishment of other officers elected by the students themselves, a survival of which is to be seen in the Scotch Universities to-day, where the student themselves still elect the Rectors. But this, the evil system of managing Universities, has long since died out in most countries, and by degrees, the ultimate control of all University machinery has come to be vested in governments, and a more or less hard and fast line is drawn between the teaching and disciplinary authorities, and the students. This was the typical history of the earliest Universities, Paris and Oxford for example. We then find the type of Universities founded in this way being imitated, and Sovereigns and great men took to founding universities themselves. and as types of these Universities we have the universities of Germany, and in more modern times of London and Victoria, and our own Indian universities. What I want you to observe is that

the typical University had its origin in a desire for knowledge, that it began under the stimulus of a great popular movement, and notwithstanding the many vicissitudes that they have passed through, the greatest yet bear the impress of that fact, they have their roots deep in the past. A University, I think, loses much by not having its roots deep in the past.

Perhaps no amount of care or organisation will quite make up for the want of a history. This is the want we suffer from in Madras. It is all the difference between a "paper" constitution and a constitution such as is found in England, a constitution made for a people, and a constitution that has grown with the people itself. Our University is a "paper" University, it has not grown out of the conditions of long past ages. How does this difference manifest itself? Why, chiefly in the way that the undergraduates look at the University. The spirit of criticism that is abroad is one outcome of this—not a bad outcome altogether, but a symptom of a want of power in the University to impress the minds of its alumni with a sense of its majesty. At Oxford and Cambridge the University is accepted as something almost as self-existing as the rest of the Universe, and therefore the University has a power to impress the minds of the undergraduates which it has not in Madras. This majesty and awe in which the old Universities are held is made up of the multitude of impressions conveyed by the splendid College buildings, the prevalence of academic dress, the sight of the Vice-Chancellor in scarlet with his silver maces, the quaint but impressive ceremonial of conferring degrees, when each man kneels and placing his hands between the Vice-Chancellor's does him homage in the old feudal fashion, a far more impressive ceremonial, it must be admitted, than standing in rows and receiving a piece of paper from the Chancellor. All these things impress the imagination and make the University seem something more than a mere device of man for sifting out the more ignorant and idle from the less, and for bestowing marks of honour on the brilliant and industrious. Then again, not only is there the University influence to be considered, but also the college influence. In the old Universities of Oxford and Cambridge we have the splendid Colleges with their traditions of the great men who founded them, the great men who have been educated within their walls, and a hundred and one other circumstances all going to impress the imagination and win the affection of their alumni. Apart from the discipline these Universities exercise over the men who go to them, and the enormous power it has over men, they give them ideas and ideals that are hardly to be got in any other way.

Not only does the Madras University suffer from the disadvantage of being new, but it has also suffered from the disadvantage of forcing on the people a body of exotic learning which was not authoritative or binding on them as learning at all. In the mediæval universities no such difficulties had to be faced; the learning imparted was recognised all over Europe as the learning of the day. As time went on, however, they had their conflicts between the old learning and the new. For instance, it was a long time before the speaking of Latin by the students was allowed to be given up in the University of Paris. A student caught talking French would probably have been subjected to the mediæval equivalent of being "proctorised." In more modern times we have had the same conflict for the recognition by the universities of Natural Science. This, however, is over, and if there is another conflict, it will be on the part of literary studies for permission to exist at all. But in Europe the spectacle has never been seen of an alien people possessed of a literature and science of their own being brought to adopt a new literature and science. The success of this innovation in India has been enormous, and could hardly have been foreseen in the early "fifties." Now that the best minds in India. have, notwithstanding reactionary propaganda, cordially accepted Western learning, one barrier to the success of the University has been cleared away. The disadvantages of origin still remain with us. One is that it is ostensibly the duty of the University to provide educated men for Government service. I am not deprecating the necessity of this, but I must say it has given a tone to the University from which it has not been able to escape. Examinations are still regarded as an end and not a means, and this leads to a tendency of trying to seem to know rather than of seeking to know, and this again leads to a tendency to "cram." Here the influence of the body of undergraduates is most potent, because I am inclined to think if the undergraduates as a body wish to be crammed, the university is powerless to prevent it. To begin with, teachers cannot but be affected by the attitude of pupils. If a class seems to sit before a teacher like a nest of young birds with their beaks open waiting to have pellets of information thrust into them, the tendency on the part of the teacher will be to sink to the level of the class, and to supply the pellets. It is here as much as anywhere that the want of independence of the University comes in. It has no endowments of its own. Nor have the Colleges any independence. The Mission Colleges are dependent on fees, subscriptions and Government aid, the Government Colleges on fees and Government aid. The result of this is that the constant pressure to show good results combined with

the attitude of the students does lead Colleges into an inclination to "cram." The University is for the most part managed by teachers from these Colleges, so the tendency of students to be crammed, and the resultant tendency of teachers to cram reacts on the University itself. Therefore, we find in the University examinations various symptoms that the University is not making strenuous efforts to put down cram. For instance, we do not find that insistence on correct English that we might reasonably expect. This is explained as necessary, making allowance for the difficulties which beset the Indian student who has not English for his mother tongue. But I contend that the allowance is made in the wrong direction. If any allowance is to be made, you might be expected to know less but to know it more thoroughly. I do not in the least intend, however, to go into the question of what the University can do to remedy this, but rather what you can do yourselves. I want to ask you as a representative assembly whether you are conscious of your responsibilities and are acting up to them. I think the best way in which you can work for the good of the University is by trying to get away from the attitude that is so common, that you were born merely to pass examinations. You must pass examinations, it is true, but you need not do it in the way too many do at present; because for one thing cram does not always succeed—he who crams most is often most incapable of doing himself justice when the pinch comes. I would therefore ask you, instead of making an attempt to seem to know, to try to know. In English, for instance, why not try and learn English through your texts instead of learning the notes to them? I believe very few do this. You would be astonished at the difference that would come over the University, the teaching in Colleges, and the style of examinations, if the students made up their minds that cramming was of no use and set to work with an eager desire to learn.

There is another thing I would like to ask you, and that is whether nothing else can be done for the University by the undergraduates, especially by the University Union whose name promises so much? Yes, you can strive to make life more worth living. "Oh! the wild joys of living!" sings David in Browning's poem of "Saul," and he goes on to celebrate "the leaping from rock up to rock, the strong rending of boughs from the fir-tree, the cool silver shock of the plunge in a pool's living water, the hunt of the bear, and the sultriness showing the lion is couched in his lair." How little are these wild joys of living understood by the youth of India! We have, it is true, our cricket and our football now,—a matter for marvel for

people twenty years ago—but I must say, at the risk of being hypercritical, that one does miss in the way they are taken up by Indian students the joyousness of youth. I am inclined to think they are taken up more in a commercial spirit, there must always be some result to be gained, there is an incessant profit and loss account being kept about them, just as about your studies, your societies, everything, in fact, that you do or think of. You are willing only to play a game, one would think, when you are convinced under the appropriate headings, Social, Moral and Physical, that it will pay, just as you read a book because it is useful for this or that examination. Or, being convinced of the advantages of cricket under the three appropriate headings aforesaid, you will not play a match unless there is some trophy to be secured. However, I do not want to be too hard on athletics as pursued in Madras. It is a great thing that it has been taken up, and the advance that it has made quite recently is full of promise for the future.

There are, however, many other beautiful and enjoyable things in life beside these "wild joys of living." To begin with, there is the whole domain of art, which is practically unexplored by undergraduates —Painting, Sculpture, and Architecture. Very few have ever thought about these things at all, though without intelligent appreciation of them a man can only live half a life. I dare say I shall be told that all this is true enough, but in the case of Indian students entirely irrelevant. People will tell me that the opportunities of studying art do not exist in India; that there are no paintings, no sculpture, and but little architecture. I do not deny that there are great difficulties in the way of the study of these arts by undergraduates, and that is precisely why I speak to the Madras University Union on the subject. I think, that though insuperable by individuals the difficulties could be overcome by such a Union, if there is any inclination. The Union might certainly take up with a prospect of success, in addition to what it already does, the study of architecture. Even in this part of the country there are by no means wanting interesting and varied examples of architecture. Of course, when we come to the subjects of painting and sculpture it is a great deal more difficult, but still, even there I think it is possible for the Union to acquire a collection of photographs of the finest European works of art, and though these do not give colour but only form, still much could be learnt from them. I am not now talking to you about trying to acquire these arts for yourself; that is a different matter. I am now only talking to you about trying to study these arts with the object of being able to appreciate them, to tell good from bad, to cultivate a sense of beauty, and to acquire a standard of taste. It would be interest-

ing to trace the connection between taste and morals, and between the beautiful and the good, which Socrates thought were so intimiately connected. However that may be, I am quite sure that the study of the beautiful has a high influence on character, and I would urge you to take this matter into consideration and see whether it is not possible to break ground in this direction. It is, I think, a lamentable thing that in India, aesthetic education has so far been altogether neglected. There is, however, one art which I am glad to say is meeting with considerable recognition among students, and that is the dramatic art, and it is well that it should obtain considerable attention, because to some extent it includes the other arts. I should, however, in this connection like to point out how much better a play could be set on the boards if you had some knowledge of painting, architecture and music. It is not, of course, only for this practical application of them or for the formation of a standard of taste that I urge the acquirement of a knowledge of the fine arts; it is as I have already said because of the moral advantage of it. We have the expression that a thing is "good form" or "bad form." That is a phrase borrowed from the fine arts, where "form" or correctness of line is of the greatest importance, and I am not sure that the cultivation of taste would not do something to supply that want of tone for which Indian students have been criticised, because in minor matters of conduct good taste really takes the place that morality does in the greater.

But I feel I have taxed your patience long enough, and I dare say I have reminded you of the story of Balaam. I don't mean the earlier and more striking part of the narrative relating to an unexpected address, but the latter portion, where Balaam was called on to curse the Jews but behold he blessed them altogether. I was summoned to bless the Students' Union, and you may complain that I have done nothing much but find fault. If so, put it down to the fact that when I see a number of young men before me, all the schoolmaster rises and I cannot resist the opportunity of giving advice. I congratulate the Union on the success that has attended its efforts. I am very glad to observe that there was a good deal of division of opinion about most of the subjects discussed, and a good deal of variety in the choice of subjects. It is especially satisfactory to me personally, to see that the Union protested by a large majority of those present against the principle and policy of students entering the arena of practical politics, by electing delegates to represent them in an assembly like the Indian National Congress. I observe from your Rules that the objects of the Association are to promote a spirit of union among the members, and to afford

facilities for their general advancement—and that the greatest latitude is allowed as to the means by which these objects may be obtained. I am emboldened by these circumstances to ask you again to seriously consider whether you would not do well to try and make your Union subserve this purpose of a broader culture which I have tried to put before you this evening. Why should it not in one aspect be a Fine Art Society, or why should it not have branches devoted to the study of one or other of the Fine Arts? After all, societies for political debates, for reading essays, hearing improving lectures, are numerous enough in Colleges. Could not the Union do more to justify its existence than it has yet done by making some little beginning in the direction of the cultivation of artistic taste? If it would do so, I can imagine for it a very great usefulness in the University.

The Hon'ble Colonel J. Pennycuick said that he had listened to the excellent address they had heard with great pleasure, and there were one or two points in it that appealed strongly to him. One was where Mr. Stone compared the student body to the soul of the University. They ought to take that to heart and consider what tremendous responsibilities rested on them. At the end of thirty-five years in India nothing struck him so much as the want on the part of the Indian youth of a sense of the discipline of union, the acting in concert and submitting the individual wish to that of their neighbours and fellow workers. And it was because he felt the importance of this that he had advocated, in connection with sports and athletics, the following of games such as cricket, football and polo, in which a man worked not for himself but for his side. Polo might be left out of the question. Football was in its youth, with a future before it. Cricket, however, had sprung into maturity so quickly that nothing struck him so much as the extraordinary progress in the game among students in this part of India. The discipline which was fostered by such a game would be of the greatest use to a Union such as this, in inducing them always to regard themselves as a body and not as individuals. If the Union carried out the work it had set before it, it would in time raise the tone of the University and eventually become what he hoped to see it. The numbers on the rolls were 139. This for an institution only a year old, and on its probation, was very satisfactory. Its success being achieved, an accession of numbers would no doubt be the result. He emphasised the advice already given to them by Dr. Miller of "Self-Help." All that had been achieved up to the present was by their own individual efforts, and they should continue in this spirit, till, in course of time, with access of numbers and increase of funds, they would find the present limit to their resources

and capabilities immensely increased. In conclusion he thanked Mr. Stone for his instructive address.

THE TEACHERS' ASSOCIATION, SALEM.

This Association was founded on the 28th September 1895. It has 18 members on its rolls at present. The declared objects of the Association are :—

(1) The improvement of Teachers.

(2) The improvement of Education generally.

The objects above set forth are sought to be obtained by

(*a*) Reading papers on Educational and other subjects, holding discussions thereon in the meetings of the Association.

(*b*) Subscribing for Educational Journals and Periodicals.

(*c*) Making suggestions to the Department of Education, in any matter concerning the welfare of teachers or pupils.

(*d*) Bringing together as often as possible meetings of Teachers from various parts for friendly debate and intercourse.

The methods proposed above, especially that of making suggestions to the Department, may appear to be highly pretentious. But it has been laid down that the suggestions &c., shall not be made in a spirit of criticism, but shall embody the opinion of the Association, couched in such language as any subordinate of the Department may be permitted to employ in making suggestions to his superiors. Of all the methods set forth, the first two are the only ones which are at present employed.

Papers were read this year on the following subjects :—

(1) The teaching of the extraction of square and cubic roots.

(2) English Poetry in Indian Schools.

(3) The Indian student, what he was and what he is.

(4) How to teach History.

(5) Rousseau.

(6) The value of the Tamil Language and how to teach it.

As regards the meetings of Teachers from various parts, it is proposed that during the coming year, members do visit the taluq stations in the District, to enlist the sympathy and co-operation of the Teachers all over the District.

ENGLISH POETRY IN INDIAN SCHOOLS.*

Poetry is essentially the product of emotion and appeals more to the emotional nature than to the intellectual nature of man. The pleasure attending the concord of sounds produces a diffuse emotional discharge. This quickens attention and rouses the potential intellectual and emotional susceptibilities of the reader, forms an association between the pleasure enjoyed and the sequence of thought expressed by the harmonious combination of words. Thus the study of Poetry, generally intensifies attention, quickens thought and induces a pleasurable feeling in sympathy with the feelings of the poet. The effects of the emotion thus created are not so wasteful as those of the emotion roused while witnessing any present real phenomenon. The feeling is gentler and hence more pleasurable. Further the unrecorded events in the history of the world, could have roused the emotions only of the actual spectators of the scene and are thus not available for the enjoyment of the rest of the human race. A past event when recollected, produces but a feeble tremor, which is the more fleeting as the event is more remote from the present. But the events and scenes recorded by the poet are not only available for all those who can understand his language but also for frequent enjoyment by the same individual. Every successive reading but discloses newer beauties that have escaped attention in former readings, instead of satiating. Thus the events and the attendant feelings and thought embodied in poetical language are permanent sources of emotional enjoyment. Its value as balancing the temporary emotional effects on body and mind, of the ups and downs of human life, cannot be overrated. In moments of extreme mental depression, there is no better friend and consoler than the strains of the poet. In moments of temporary exhaltation, there is no better philosopher than the warning voice; in moments of languor, there is no better tonic than the encouraging and persuading words of the muse.

While, thus the effects of poetical studies are primarily emotional, its effects on the intellect are none the less important. The noble thoughts and sentiments expressed and the highest ideals embodied in the poetical language are more alluring to the mind by reason of the awakened emotion than when they are laid down in the prosaic disquisitions of a philosopher. By the law of the transference of association the pleasure attending the sounds becomes associated with the thoughts

* A paper read by K. Sesha Aiyar, B.A.,L.T., at the meeting of the Teachers' Association, Salem, held on the 12th October 1895.

expressed and thus produces a permanent impression. Thus a wide sphere of poetical studies cannot fail to ennoble the sentiments and ideals of the reader.

While a teacher who teaches poetry to his pupils should bear in mind these general results of poetical studies, the teacher of Indian students ought to pay particular attention to the advantages which a study of English poetry offers to the Indian students. The teacher in the Indian schools is of necessity compelled to pay greater attention to the acquisition of English language by the pupils than to any other subject. The greater portion of the energies of the pupils of our schools is almost throughout the school course concentrated in the acquisition of a foreign language. From the 1st Form upwards, every other kind of knowledge that the pupil has to acquire has to be acquired through the medium of a foreign language. When his acquaintance with that language is yet rudimentary, he is to make that language as far as possible the vehicle of thought and speech. Consequently the chief work of the teacher in the lower classes is to cultivate this acquaintance as much as possible.

The acquisition of a language implies the command of a large vocabulary and phraseology. Words and phrases that occur in the prose compositions are understood at the time when the piece is studied, but no permanent association is formed, there being no interesting pegs to hang them upon. But when they occur in poetical compositions the general sequence of idea, which take firm possession of the mind of the reader offer many points of attachment to form permanent association. This is a matter of very common experience. The attendant emotion deepens the association.

More important than this, is the advantage the teaching of English poetry offers as an instrument of emotional culture of the Indian pupils. There are certain defects of the Indian emotional nature which have been accentuated by successive inheritance through ages and long continued political and social conditions, and have thus become national peculiarities of temperament. The spirit that runs through the poetical literature of any nation or of any period reflects the leading peculiarities of the temperament or of the age. The spirit that breathes through English poetry in general, its natural and realistic tendencies, the freedom of thought and action that echoes through every line of it, are absolutely unknown if not in a great measure antagonistic to the spirit and tendency of the vernacular and the classical literature of India, abounding as they do in exaggerations and fantacies, grotesque combinations and fabulous representations, reflecting the spirit and tem-

perament of the nation to whom they belong, and of the age in which they originated.

In several departments of emotional development the culture of the intellect plays an important part. But no amount of intellectual development can thoroughly eradicate emotional defects and peculiarities. It is a matter of common observation by foreigners and of daily experience amongst ourselves that, notwithstanding, the high degree of culture reached by the intellectual classes of India, there is very little of consistency between their intellectual professions and belief and their actions in daily life at home and in society abroad. This is as what might be expected. Professions and beliefs are essentially the product of intellect, while personal manners and conduct are distinctively products of the emotional nature. This, therefore, only discloses, how very little the education given in schools and colleges contributes towards the harmonious emotional development of the majority of the pupils and students. Not that there are no means. But because the existing means are not properly understood and carefully utilised. In the hands of a judicious and skilful teacher, no other subject offers greater facilities for creating and sustaining emotions of a nature suited to the age and capacity of the pupils and for thus fostering emotional tendencies capable of growth and cultivation in later life. The principal emotional defects of the Indian nature are want of national and patriotic sentiment, non-appreciation of the beauties of nature, fatalistic tendencies resulting in complete prostration under difficulties, sapping all patient exertion, imperfect comprehension of the respect due to oneself leading to passive submission under injuries inflicted, and a limited conception of human duties narrowing the sphere of personal interest. All these defects, apparently originating from the circumstances already mentioned—the political and social conditions to which our nation had been subject for ages,—are capable of being remedied by presenting to the minds of pupils different social and political conditions under which other nations are or have been placed together with the emotions they have aroused in the minds of the poets viewing them. The pleasure aroused by the harmony of his words presents his sentiments in a most attractive light and consequently those sentiments are likely to take firm possession of the minds of the readers.

English poetry offers a vast variety of the conditions of society and situations of life from which we can select the most appropriate to the requirements of our pupils.

One of the most valuable adjuncts to the study of poetry is the recitation of the important passages of a poem. In the earlier days of

the English schools and colleges in this country recitation of English poetical and prose pieces formed a very important part of the education imparted in them. A thorough knowledge of the passages and the graspes of their grammatical structure and peculiarities was not so much sought after as the ability to recite them. It may be within the recollection of many that in our younger days, the only idea we had of the study of English poetry was that of mastering the verbal sequence so as to be able to recite them and that we often used to wonder how our elders, who had entered or were about to enter the university course, were able to recite thousands of lines of poetry, as, we used to be told, they should, for the purpose of securing a pass in the examination. Almost invariably the pupils who were prepared for the Matriculation were compelled by their teachers to recite fully all the passages prescribed for the examination. The students of the university too were compelled to recite a very large portion of the poetical pieces prescribed for them. But later on the influence of the revolt against the old methods of education and of the advocacy of the intellectual education in English schools had made itself felt in our country, and as a result, the recitation of the poetical pieces has come to be looked upon as mere cram and consequently not entitled to much attention in schools. Recitation is in these days confined only to the minimum mumber of lines prescribed in the curriculum, with a view to prepare the pupils for the Inspector's visit. Occasionally too, a few students are made to get up select portions for exhibitions during the annual prize distributions. Beyond this, little attention is paid to this subject. No doubt, a much greater attention is now paid to the critical and grammatical study of the passages than before. But, in this matter, there are reasons to believe that we have passed from one extreme to another. Mere cramming of the passages is no doubt an evil. But a merely critical knowledge of the various parts of a poem and that such as is secured for the purpose of answering examination papers, without the ability to follow for oneself the train of thoughts of the poet, is also an evil. What ought to be aimed at is the combination of a certain amount of critical knowledge with the power of reproducing the ruling thoughts of a poet, as nearly as possible in his own words and in due sequence.

The advantages of making the pupils recite the principal passages of poetical compositions are many. A good recitation involves clearness of utterance, modulation of voice and loudness of tone. When pupils are made to recite, though in the earlier attempts, their natural faults are likely to exhibit themselves, patient observation and repeated correction

on the part of the teacher are likely to eradicate them. The faults of tone, of manner, of speech and of pronounciation, that we find in the majority of the pupils of the present day, may be attributed to a large extent to the want of proper exercise in recitation. The experience of those engaged in preparing rehearsals, for dramatic performances, the results achieved by the recent experiments for curing stammering, the notable success achieved by the greatest orator of ancient days, all necessarily lead to the conclusion that there are very few natural defects of speech which cannot be remedied by sufficient exercise in recitation. This exercise is all the more important in the case of the pupils of our schools considering that they have to acquire a foreign language and that with little exercise out of school hours.

Besides these advantages which may be considered to be more or less mechanical, the greatest advantage it offers in the case of our pupils is that it makes the acquisition of language easy. The vocabulary and phraseology of the pieces committed to memory become permanent acquisitions. When a pupil has a large command of these, the sequence of thought that he wants to express, finds ready and intelligible utterance. In like manner the permanent impression of the style of language employed by the leading authors leads to the formation of an easy and flowing style when the pupil is called upon to express his thoughts. In the department of language acquisition, the more subtle parts of the intellect play but a subordinate part, the principle of verbal adhesiveness being the most potent factor. Nothing is so well calculated to effect this as frequent exercise in recitation. The compositions which thus become the property of the young pupils form a permanent stock of pleasurable images and thoughts to be recalled in the leisure hours of mature life.

Frequent repetition involves the repetition of the emotional impulses and just as in physical development frequent repetition of an exercise renders physical devolopment permanent, the frequent exercise of a particular emotional sensibility produces a permanent emotional nature.

The proportion of the exercise in recitation to the other departments of language acquisition must vary inversely as the age and critical faculty of the pupils. The period most suited for committing passages to memory is one least suited for critical studies. The practice of the old Indian school masters, that of insisting on the getting up of passages, the meaning of which the pupils are not expected to understand, was based on their experience of the great plasticity of the brain in the early stages of development. But unfortunately a good deal of brain

power was wasted by them as the associations were mainly of unintelligible sounds and not of sense with sound. The modern teacher of Indian youth may yet learn a lesson from this—that those passages which in later life ought to be well and critically studied and remembered, and which, even to the younger ones, unfold some portion of their beauties of melody and sentiments, ought to be committed to memory in early age. In the beginning of poetical acquisitions, the task of the pupils ought to be mainly that of getting up. The teacher offering only that amount of explanation as is absolutely necessary to enable the pupils to grasp the general drift. In the next stage more difficult and complicated passages ought to be committed to memory and easier ones critically studied. At an advanced age, there must be less of memory work and more of critical study, the pupils having already acquired a stock of these passages now critically studied.

(To be continued).

ON A GEOLOGICAL TRIP TO TRICHINOPOLY DISTRICT.

By H. Narayana Rau, M.A.

As has been the practice of late, I availed myself of the last Michaelmas holidays for making an excursion along with students, to supplement the theoretical instruction given in the class-room with some practical training in field-work. I need hardly lay stress on the fact that it is this portion of the subject that is to be mainly kept in view in the teaching of a scientific subject like Geology. I would only mention this to draw attention to the point whether it would not be practicable to make these trips more frequently than we find it convenient to do under the present circumstances.

It was to the Trichinopoly District where we find the marine cretaceous beds of Southern India most typically developed that we arranged to pay a visit. My reasons for selecting this locality were various. In the first place, with the solitary exception of a trip to Pondichery some years back, students had never before the advantage of examining a fossiliferous formation. And even as regards this visit to Pondichery, it was rather unfortunate that this area should have been chosen for the benefit of students; for it should have been the last that one should have selected for such a purpose. In the Pondichery area, there are only two members exposed of the South Indian cretaceous rocks, and even these are very obscurely seen, owing to the absence of natural sections and the thickness of the soil which conceals the outcrops

of the beds. And I very well recollect that there was some degree of disappointment among the students on that occasion. In the Trichinopoly area, on the other hand, we find a regular succession of the various beds most typically seen. Beginning from the gneissic area on the west which forms the western boundary of the sedimentary rocks, we find, as we proceed eastward, the various formations successively overlapping the older formations on the west, till we find the latest or newest bed of the series disappearing beneath the "alluvium" or the deposit of modern times. So that here indeed is a typical area showing a regular and more or less undisturbed succession of fossiliferous beds, all the more interesting, because of the fact that the beds are all marine deposits and contain numerous remains of marine animals, living as well as extinct. This is an exceptional condition of things in the geology of Peninsular India, which mostly consists of crystalline rocks, with the exception of certain patches here and there, of marine beds along the coast. Even the well-known coal-bearing beds of the Peninsular area, what are known as the Gondwana Series, *e.g.*, at Raniganj and Singareni, &c., are all fresh-water formations containing numerous plant-fossils but very few animal remains. It will thus be seen that the area we had chosen was one best suited for purposes of study.

Our programme as originally drawn up was to break the Railway journey at Kumbakonum, and thence travel by the ordinary country cart to Ariyalur (distance 29 miles), where we first meet with the outcrop of the topmost member of the Cretaceous Series (Ariyalur Group), overlapping an older member (Trichinopoly Group) on the west, as it is itself overlapped by the alluvium on the east. On reaching Kumbakonum, however, we were informed that the road from Kumbakonum to Ariyalur was very miry, and that it would be better if we travel on the Tanjore and thence go to Ariyalur, as the road there was much better and the distance also much less (26 miles). So we continued our journey by train to Tanjore. Starting from Tanjore about noon, we proceeded due northwards by cart towards Ariyalur. The country was flat and our road lay through a most fertile region covered with alluvium. The soil consisted of a sandy clay (or loam) more or less pale in colour. It was one uniform mass of green colour all round, broken only here and there by narrow canals overflowing with water and forming a net-work intersecting the country in all directions. There was not a single piece of ground which was not brought under cultivation. Such was the nature of the country till we reached the Coleroon about 10 miles to the north of Tanjore which marks the boundary between the Districts of Tanjore and Trichinopoly. The Coleroon was in flood at the

time and we were conveyed across the ferry in huge leathern baskets. When we reached the other bank of the river, a remarkable change in the character of the soil was at once visible. It was what is known in Indian Geology as the "black soil," or cotton soil, or "Regur." It is a black or bluish-black clayey soil, the colour being due to the presence of iron as well as to the presence of vegetable matter. It has a strong affinity for moisture, which it absorbs to a considerable extent, so that after some heavy rain, the clay, by the imbibetion of water becomes so very soft and tenacious that it is with considerable difficulty that carriages can move along the roads. During the dry season, the soil parts with its water by evaporation and the mud shrinks in bulk so that the surface is crossed in every direction with wide gaping cracks, extending often to a depth of many feet. Shortly before our visit, as there were some heavy showers, the roads had become almost impassable. The wheels of our cart sank into the mire to a depth of a foot or more so that our progress here was exceedingly slow, about a mile an hour. The roads here had evidently never had the benefit of metalling since they were first opened. The question as to the proper material with which to metal roads is probably still an unsolved problem in these parts, due no doubt to the absence in the neighbourhood of any such hard rocks as granite, gneiss, basalt, &c., or even laterite, which, in the absence of any of the former rocks, furnishes tolerably good material for road-metalling. The aspect of the country around, no less than the condition of the roads, also presented a sharp contrast to what we had seen prevailing on the other bank of the Coleroon. Instead of supporting a luxuriant vegetation, the soil here could sustain only low creeping grass, which forms a tangled net-work on the surface and some low shrubs such as the prickly pear, and so forth. Big trees are scarce. A large portion of the country is left uncultivated. In those parts which have been brought under cultivation, cotton-plant and the castor-oil plant form the chief crop that the soil is apparently capable of yielding.

We continued our tedious journey through this miry road and proceeded still to the northward. As evening approached and as we were still very far off from the nearest halting-place, we had no time to look about us more closely for any sections that might reveal the nature of the rock beneath this thick deposit of cotton soil. For we learn from the Report of the Geological Survey (Vol. IV., Memoirs), as well as from the map attached to it, that certain of the cretaceous beds are well seen in some sections cut by certain water-courses cropping out from beneath the thick layer of cotton soil. As the shades of night had already fallen, we had to hasten till we reached the village of Keelapulure, where we

retired for the night. Starting from this village early next morning, we resumed our journey. The first thing we noticed was a change in the character of the soil. The characteristic "black soil" was no longer to be seen. It was replaced by a sandy clay, gray or yellowish in colour. We had not proceeded far (about a mile) when here and there, alongside of the road, we found small blocks of stones of different kinds. These were, some of them, pieces of a sandstone with traces of calcium carbonate as seen by the action of Hydrochloric acid. On breaking one of these pieces with a hammer, we found, to our infinite joy and surprise, a perfect shell of a Terebratula inside. This it was that first made us suspect that there must be cretaceous rocks exposed somewhere in the neighbourhood and that we were probably treading on these rocks, only concealed from view by the superficial layer of soil. With these pieces of sandstone there were also scattered here and there nodules of a highly ferruginous clay, and also concretionary limestone (what is known in Indian Geology as Kunkur). At some places we saw also pieces of limestones full of fossil such as Pecten, Gryphœa, &c. Our suspicions were no doubt confirmed; but we only wanted to see some sections which would show these rocks *in situ* or see some outcrops of these beds free from the superficial covering of soil.

Students had here a vivid illustration of one of the fundamental principles of field geology. The published geological maps of a country always leave out of account the distribution of the soils which conceal the rocks below; and by representing the rocks as if they appear at the surface, cause a beginner to believe that in nature there is the same simplicity of things. He is led to think that he has only to visit the locality to see the formation which the map shows as occurring in it. And the first thing that the student feels on visiting the locality is a sense of disappointment and a sort of misgiving whether the map is quite accurate, or at any rate whether it is not an exaggeration of the real state of things. It is not long before the student is disabused of this delusion. And he soon realises that the map, far from being inaccurate or exaggerated, is the result of bringing together and correlating observations made at different localities; so that, if a particular formation is mapped as occurring in a particular area, it is not because it was actually observed extending along the whole length represented on the map, but that its continuous existence is *inferred* by bringing together and comparing the results obtained by observing the structural as well as lithological characters of the bed at the various isolated places where it happens to be seen or "to crop out" at the surface. The map is thus the result of a process of reasoning and generalisation,

a process "by which we pass from the known to the unknown." This purely analytical or inductive method of reasoning forms the common basis of all sciences; but nowhere is it more often called into requisition than in the case of a geologist in the field. In our journey here we had several illustrations of the application of this faculty by the officers of the Geological Survey. In fact, the part of the country we were at this time traversing presented to our view nothing but a uniform expanse of a gray or yellowish sandy soil which completely covered and concealed from view the underlying rock, although in the map, issued by the Geological Survey, which we had taken with us, the area is shown as being made up of cretaceous rocks. Apart therefore from the fragments of fossiliferous stones which we picked up on the road, we were eager to obtain some conclusive proofs, some sections either natural or artificial, which could have formed the basis for the generalisation of the Survey. The country was flat and bare of vegetation. We proceeded for some distance along the road, when we found a small water-course running obliquely across the road from west to east, but before doing so, it ran for a few yards parallel to the road on the west, cutting tolerably deep into the rock below. The section thus exposed revealed beneath a thin layer of the soil, a deposit of yellowish shale more or less sandy and containing fossil shells of a great variety. The beds were more or less horizontal with only a slight dip to the east. We followed the course of the channel across the road till we reached the other side of the road, where the section was still deeper, but still did not show the bottom of the clayey bed. The bed of the channel being dry, we followed its winding course a few yards further, when we found the yellowish shales covered over by clay of a more or less gray colour. These clays presented an irregular lamination. A remarkable characteristic of these beds was that they were traversed both horizontally and vertically by thin sinous seams of a red or haematitic concretionary clay resembling laterite in appearance. Owing to the greater hardness of these lateritic bands than that of the clays through which they ramify, they in most cases stand out as prominent ridges in the sections cut by these gullies. The bed of the channel itself was thickly strewn over with pebbles of different varieties of quartz, such as chalcedony, jasper, agate, opal, &c. Some of these presented curious figures of concentric circles made up of various forms of quartz, looking like some fossil Protozoans, such, for example, as Radiolarians. The nature of these I have not yet been able to determine. The quartz pebbles were evidently derived from some neighbouring highlands of crystalline rocks, where the torrent probably had its origin. This natural ravine extended still further, but as its direction was contrary to that of our route, we gave

it up and regained the road, and continued our journey. About a quarter of a mile further on, in the broken ground, we saw some shallow sections exposing a bed of coarse sandstones, probably a higher member of the series than the sandy clays above-mentioned. The country was falling away perceptibly and we were entering a hollow area. This probably culminated or attained its greatest depth in the bed of the river Murdayaur, an affluent of the Coleroon. This stream, though comparatively narrow, has cut deep into the ground owing, probably, to the extreme softness of the soil. For here we again meet with the characteristic black soil and along the left bank of the river, a considerable thickness of this black mud was exposed, attaining a height of about eight feet or more without still showing the bottom of it. This black soil we first noticed along the northern bank of the Coleroon had evidently stopped short for a few miles around Keelapulure and now reappeared in the Valley of the Murdayaur. This peculiar distribution of the soil, *viz.*, in hollows, such as in the neighbourhood of river valleys, is characteristic and no doubt suggested the theory that it was the deposit of low swamps or marshes. From the Murdayaur to the village of Ariyalur, it was less than two miles. It was one uniform mass of black soil all round ; and the huge bund of the large tank to the right of the road is made up of this black mud.

On reaching Ariyalur, we set out soon after to examine the cretaceous beds that crop out at several places round the village. The presence of these beds in the vicinity is most strikingly shown by the fact that the chief building-stone in the village is an impure limestone full of fossil shells. The Chuttrum where we halted as well as the steps of the large tank to the west of the village, all drew their building-stone from some fossiliferous bed. We proceeded directly towards the west through some paddy fields and across a small water-channel, which we forded with considerable difficulty. For, although the stream was shallow, it had washed into it such a thick mass of pasty mud from the surrounding area of "cotton soil" that the river-bed was a morass with an extremely treacherous ground. Having crossed this quagmire, we made our way through a narrow ravine lined on either side with lofty mounds, composed entirely of the black mud. This gully runs directly to the west and it seems it forms the channel for carrying away the surplus of water from the stream for purposes of irrigation. The bed of it was dry and we followed its course for about a quarter of a mile when we found an extensive outcrop exposed on our left. The beds here exposed consist of yellowish calcareous sandstones, showing the lines of bedding as well as of jointing. The beds are more or less horizontal, with only a slight

dip (not more than 5°) to the east; and a small section exposed at one point showed that these beds rested on some sandy clay below. These beds were different from the clays we had seen before and represented probably a higher formation. They form low mounds; the superficial portion is weathered and forms a mass of broken rock crumbling into dust. Fossils are scattered here and there in this broken ground. The most abundant are:—Pecten, Gryphœa, Cardium, Trigonia, Ostrea, Inoceramus, Terebratula, Nautilus, also a few Ammonites, Echinid shells are often found. Pieces of fossil wood are also found in great abundance. Another peculiar fossil is also found in large numbers. It consists of a jointed stem like the stalk of a Crinoid but the topmost joint imperceptibly passed into the broad dice-like calyx as in the fossil Apiocrinus, with which I should have identified it but for its size; the stalk was half an inch or more in diameter and the calyx was in some cases even more than two inches. Here and there we also found some nodules of various sizes, probably phosphatic in nature.

The next morning we turned our attention to the east of the village, and found similar beds exposed on a small scale in the neighbourhood of a small tank, the water of which is well-guarded for drinking purposes. The beds here are identical with those already seen and there is nothing remarkable about them.

Leaving Ariyalur, we proceeded in a north-westerly direction towards Coonum. The country was flat and covered over with a layer of black soil which presented the same characters as before. About two miles to the north, we came across a deep gully running across the road and crossed by a bridge. The bottom of the channel was nearly dry and exposed to view an interesting section showing at the bottom a bed of calcareous sandstone similar to that seen at Ariyalur overlaid by a thick layer of black soil. In the broken ground which formed the bed of the stream, we picked up several specimens of Gryphœa. The beds had precisely the same characters both lithologically as well as regards the amount and direction of the dip as the beds at Ariyalur, thus showing that the beds at the two places are continuous though concealed from view in the intervening area by the thick deposit of the black soil. We continued our journey through this flat country without any visible change in the scenery around or in the character of the soil below, though the Ariyalur group (the topmost member of the createceous series) must have stopped short somewhere below the surface in this region, allowing the Trichinopoly group, an older member of the series, to crop out. But owing to the uninterrupted expanse of the black soil at the surface and the absence of any sections or natural gullies by the

side of our route, and as the time at our disposal precluded us from straying far away from the road or making any detailed examination, we had to proceed without seeing the Trichinopoly group or even any outlying member of the same. We went on till we were within a few miles (about 2 miles) to the south of Coonum, when leaving the main road, we struck into a bye-path to the west towards Odium, a village about two miles to the south-west of Coonum, where the Ootatoor beds (the bottom most beds of the series) are most typically seen. As it was already past 4 o'clock in the evening, we hastened through the Parachery and then across certain fields towards Odium. On the way, especially in the neighbourhood of the Parachery, we saw here and there small out-crops of a limestone bed but in the absence of any sections, we could not detect the exact relations of these isolated patches. We followed this path for about a mile and a half when we saw a shallow channel a few yards off on our right. We at once made towards this gully and followed its course; a few yards further it cut deeper into the rock and an excellent section was here laid bare. It showed a succession of clays of varied colours, such as pink, gray, yellow, &c., in close juxtaposition. The bedding of these clays was irregular, the lines of stratification running irregularly in all directions. These were interstratified with bands of a white fibrous mineral, which we at once identified to be gypsum. These layers of gypsum, like the clays themselves, were without any persistence of direction, and increased in numbers and in thickness as we traced the course of the gully. In some cases, these bands of fibrous gypsum exceeded an inch in thickness and formed thick irregular partings between the different layers of clay. We followed this gully along its watery bed, lined on either side with high mounds, 8 or 10 feet in height, composed entirely of these gypseous clays. Intercalated with these clays we also found here and there thin seams of a white chalky substance effervescing with Hydrochloric acid. The bed of the gully was strewn over with huge blocks of fibrous gypsum washed from the surrounding beds. Here and there we could also find small plates of crystallised gypsum or Selenite. These beds were unfossiliferous so far as we could see; still the section here exposed is a remarkable and interesting one showing the mottled clays and abundant veins of gypsum. The clays were impure, more or less sandy. A few yards further on towards the west or rather towards the north-west, we saw a different bed exposed along another gully, a branch of the previous one. The beds here, unlike the yellowish and fine-grained limestones seen at Ariyalur, consisted of a dark, coarse-grained limestone, rather impure, with particles of sand. This was full

of fossils such as nautilus, ammonite of different varieties, Terebratula, Pecten, Trigonia, Ostrea, &c., also Gastropid shells. We also saw some specimens of corals. The mode of occurrence of the fossils in these beds was indeed very instructive. In the various fossiliferous beds we had hitherto seen, *e.g.*, at Ariyalur, the fossils were mostly picked up in the weathered or broken surface of the rock. In most cases the loose superficial layer of the rock was washed off and brought prominently to view the fossils imbedded in it. But in these limestones near Odium, owing to the peculiar mode in which they appear to weather, and also, perhaps, owing to the hardness of the rocks themselves they did not present any superficial covering of debris, so that the fossils can be found only after breaking asunder the rock and carefully examining the broken surface. We found several of such fossils *in situ* in the rock. This was indeed an important fact, as showing how and where exactly we should look for fossils in any formation. As regards the peculiar mode of weathering exhibited by these limestones, we found that it resembled the sphroidal weathering of granite. Successive coats or rings separate from each block like the coats of an onion. As the result of this sort of weathering, we found several rounded blocks broken from the main mass of the rock, laying the bed of the water-course. This limestone bed showed a small dip to the east. The precise relations of this bed to the adjacent gypseous clays we had no time to discover as it was already dark and as we had still to walk a considerable distance before we could reach the village Coonum where we had arranged to retire for the night. In fact we had but a very cursory view of this excellent locality and we should gladly have availed ourselves of the next morning for further examining the beds more closely. But as we had already come very near the end of the holidays, and as we had still much to see, we determined not to change our original programme, so we set out from Coonum soon after midnight and in the darkness of the night, crossed the narrow strip of cretaceous rocks that lies between Coonum and the western margin of the cretaceous area, where the gneissic or metamorphic rocks crop out from beneath the sedimentary rocks. Although it was night, we could still make out that we were traversing a black soil region, from, the slow progress of our carts and also from the deep furrows on the road. Early next morning we thus found ourselves traversing a country the general features of the landscape of which were quite different from those of the country we had hitherto passed. The country, instead of being low and flat as hitherto, was now rather hilly. Our road was lined on the left with low hills of gneissic rock. The gneiss was a black hornblendic gneiss, and the foliated or schistose character of the

rock was well-marked. Certain accessory minerals were also found in this gneiss, such as epidoteof a greenish colour (Pistacite), garnets and also magnetite. The gneiss is also pierced at one place by a vein of granite, composed mainly of a gray slightly pinkish felspar (probably orthoclase). We continued our journey for about a mile from this place, when we reached the Madras Trunk Road, a broad and neat metalled road which runs to the south towards Trichinopoly. And it was with a sense of relief that we bade adieu to the miry roads through which we had travelled for so many days. We now passed through the gneissic area and reached the village of Servaychaur where we halted at noon. Leaving Servaychaur soon after, we travelled towards the south along the Trunk Road, till we reached the village of Padavalloor, where a small road branches off to Ootatoor. We travelled along this rugged road for about two miles and reached Ootatoor where we halted for the night. Early next morning we set out to see the "plant beds," or the representatives of the Gondwana beds, which crop out here just below the bottom most member (Ootatoor group) of the cretaceous series, and rest on the gneissic rocks to the west. These beds are to be seen about a mile to the east of the Traveller's Bungalow in the village. We proceeded towards the east but instead of taking this Bungalow as the starting point and going direct east of it, we went a little to the south, and then took an easterly direction so that we had not gone for about a mile when we met with an outcrop of the Ootatoor clays This bed here presented the same characters as we had seen in the neighbourhood of Coonum and Odium. It was a sandy gray or yellowish clay with bands of gypsum. There were also thin layers of a white chalky mineral interlaminated with the clays. The bed spreads for miles round this place. So far as eyes could reach it is one uniform clayey surface without any trace of vegetation except a thorny plant here and there. The fossils that were most abundant were belemnites, which appeared thickly strewn over the surface and in such enormous mumbers, that the bed has been very appropriately termed "the belemnite bed." There were also here and there a few phosphatic nodules to prove the former existence of these nodules in immense numbers, which have since been removed by the order of Government. After proceeding for about a mile on this bed in a north-easterly direction without still seeing the end of it, we proceeded straight to the west towards a water-course just east of the Bungalow. Here the belemnite bed was cut into by the water-course. We followed this channel a few yards to the south, where it was joined by another branch coming from the gneissic uplands of the west. Just where the two branches meet, the section is deep and showed beneath a thick layer

of yellow gypseous clays, a bed of soft white or gray shale with distinct impressions of leaves or fronds. But, owing to the softness of the rock, and the fact that the bed of the channel was not dry, but contained flowing water so that the shale at the bottom of the section was thoroughly saturated with water, we could not get good specimens from it for preservation. But on the spot we saw specimens showing distinct plant impressions, though they were spoiled in their carriage home. The soft shales were intercalated at the bottom with a reddish or brown ferruginous sandy clay, which was evidently unfossiliferous. These beds were seen at the bottom of the section on the left side of the united water-course. On the right bank, the cretaceous clays were absent and the plant shale rested on the gneiss dipping to the east and away from the gneiss. We traced the downward course of this united channel for some distance to the south-west and examined the same section. Instead of tracing the downward course of the stream, as we had done, a party of two students had followed its upward course, where it seems they came across some dry specimens of this plant shale with obvious plant impressions. As it was a bright sunny day, we could no longer remain out and so returned to our quarters.

Leaving Ootatoor soon after, we proceeded on our journey and soon joined the Madras Road and continued our journey to the south towards Trichinopoly. When we were within a mile of the village of Seragnoor, our attention was drawn to certain heaps of stones alongside of the road close to certain fields on our left. These were evidently pieces of limestones and shale derived from some neighbouring fossiliferous formation. Having made enquiries as to the source of these stones, we at once made our way towards the east across certain fields. We had gone for about half a mile when we saw a shallow ravine exposing a section of the rocks below. The section, though very shallow (not more than a foot), showed the characteristic gypseous clays overlying a gray shale with impressions of leaves. We followed the section still further, where it was a little deeper. The relations between the two groups were those of distinct unconformity. At the base of the plant shale there was the same brown ferruginous clay that we had seen at Ootatoor. These beds here had one advantage, *viz.*, unlike those at Ootatoor, they were dry as the channel was perfectly free from water. A few yards further on, we saw overlying the plant shale a gray rock (evidently a limestone, effervescing with hydrochloric acid) showing but faintly the structure of a coral rock. In some cases this structure was more evident, thus proving conclusively that it was a coral-reef limestone, which is in some places intercalated between the plant shale and the overlying cretaceous

gypseous clays. In the dry bed of this ravine, we found several big blocks of this limestone, showing more or less distinctly the coral structure. This was no doubt an important thing, as the coral reef limestone was the only important member of the cretaceous series that had hitherto escaped our notice. We then rejoined the Madras Road and found our way to Seragnoor, where we halted for the night. Leaving Seragnoor soon after midnight, we reached Trichinopoly the next morning. With this our excursion practically closed.

In conclusion, I may add that this is the biggest excursion we had ever undertaken. Excluding that portion of the journey traversed by the Railway, it covered full one hundred miles and occupied us one full week. Considering that our programme was so big and involved visits to so many places, it was but natural that the brief space of time at our disposal did not permit anything more than a cursory examination of the various formations. But it should be remembered that our avowed object is not so much to make any original researches as to illustrate and bring home to the minds of students some of the broad fundamental principles of field geology. Looking from this point of view, I trust that our recent expedition has fully achieved its purpose.

H. NARAYANA RAU.

REVIEWS OF EDUCATIONAL PERIODICALS.

ENGLISH.

THE JOURNAL OF EDUCATION, London, December. The Journal regards a speech by Sir John Gorst at a School Board music competition as an earnest that the present Government intends to "tackle the Secondary Education problem." Sir John Gorst in the course of his speech said:—"We have to collect into one centre the separate and conflicting educational departments. We have to create local authorities to supervise and co-ordinate higher education. We have to complete the ladder from the most elementary to the secondary schools, and thence to the Universities. We have to provide better instruction in the Art and Science of teaching. We have to form a registry of teachers and establish a national system of teachers' pensions."

The Journal is still harder than the *Times* on the Preliminary University Local Examinations. This is what it says:—

The Preliminary University Local Examinations have so far answered their purpose in bringing grist to the mill and depleting the coffers of the College of

Preceptors, but we still doubt the wisdom of their policy. Oxford, it will be remembered, started the new venture about two years ago by instituting a juvenile Tripos for children of thirteen and under. Cambridge shortly followed suit, with the extra attraction of removing the limit of age, except for honour candidates. Oxford was not to be undone, and the age limit was removed. The compulsory subjects were originally English grammar, dictation, and arithmetic. English grammar was discovered to be a plucking subject, and was straightway relegated to the alternative subjects. This game of brag is hardly consonant with the dignity of our ancient Universities, and to offer a University certificate to any and all who can satisfy the examiners in spelling, ciphering, one of the Gospels, outlines of two centuries of English history, "a fair knowledge of Latin accidence" and *Gradatim*, and domestic economy, will not raise the level of secondary education, though it may bring in shekels to the treasury. We doubt, moreover, whether in the long run it will prove a financial success. The vulgar will not notice any distinction between "Preliminary" and "Junior," and parents who have paid a fee of 15s., and advertise their children as holders of *the* Oxford and Cambridge certificate (so it will be called) will not care to pay double that amount on the chance of their gaining a higher grade. At the last Cambridge Preliminary Examination more than half the candidates were above the age of fourteen. Nothing, we fear, but a Council of Education can put a stop to this "cutting" business.

The principal article in the number is one on *Modern Languages at Paris and Cambridge*, by Mr. F. B. Kirkman. Last August he wrote an article to show that modern languages received no attention at Oxford and this is intended to demonstrate the inferiority of Cambridge teaching and examining in them, to that of Paris. We think that Mr. Kirkman makes out his case very well. Especially weak is the Modern Languages Tripos in that it does not insist on any colloquial knowledge, there is no *viva voce*. We are inclined to doubt the truth of one of Mr. Kirkman's incidental assertions—that it is more difficult for an educated person to talk in a foreign tongue about "difficult and diverse questions, literary, artistic, philosophical, or otherwise" than "to take part in familiar small talk." If this were so, by analogy it would be more difficult to follow a French professor lecturing, say, on feudalism, than a caffé chantant singer, but it is hardly to be doubted that an ordinary well educated man would find the latter the more difficult task. It seems to us sufficiently obvious that an Englishman would find conversation in a foreign language easy in proportion as the subject matter favoured bookish treatment. In the case of the Romance languages again the identity of vocabulary, once you get beyond the trivialities of every-day life, is an immense help in the talking about matters "literary, artistic, philosophical, or otherwise." Even if Mr. Kirkman is wrong in this point, however, we quite agree with him in thinking that part of the Modern Languages Tripos examination should be *viva voce*, although another of his reasons does not commend itself to

us, that otherwise headmasters who engage a modern language master on the strength of his being a tripos man will have no guarantee of his being able to teach the languages he professes to know. We have yet to learn that the Cambridge triposes are intended as "general education tests" for schoolmasters.

Another article *Colloqium Puerorum* by Walter Ripmann, describes a sixteenth century Latin phrase-book intended to help school boys to master colloquial Latin for use in school and at play. There are amusing things in it, but its chief interest lies in its illustrating the extreme classicism of Germany at the time.

The supplement contains an interesting interview with Dr. Richard Wormell about the Secondary Education Commission. Dr. Wormell seems to expect two good things from its labours. The strengthening of existing good private schools and the disappearance of bad, and the bridging of the gulf between Primary and Secondary Education, by a blending of the two classes of teachers. Certificate holders he would allow to teach in any school, irrespective of grade for which their qualifications fitted them, and, which was willing to employ them.

THE EDUCATIONAL TIMES, London, December. Oxford and Cambridge are now taking their responsibilities as overseers of Education very seriously. Not satisfied with bringing "culture" into every home by their extension lecture system, and testing the results of Secondary school work by their "Junior" and "Senior" local examinations they have lately instituted a new examination, a preliminary even to the "junior," and as the Journal remarks "are prepared to confer honours even on little children of twelve." These examinations are in no sense compulsory, but it certainly seems doubtful if the universities are well advised in holding out the bait of certificates of proficiency for such young children. One excuse no doubt is that parents will have such guarantees of the success of their childrens' instruction, and the ancient universities are prepared to award them on more rational principles than other bodies.

A letter to the journal brings to our knowledge what is to us a new form of benevolence—"The London Loan Fund for the Cambridge Training College" which has been established to provide teachers who wish to be trained with a sum of money (£25) on loan, to be repaid according to a settled scheme, out of the pay of their first appointment. No interest is charged and the money, as soon as it is paid back by one teacher, is lent to another. Money spent in this way seems to us particularly well applied, and it is a system that might well be imitated in India. It is very common for teachers and others to borrow for college

and examination fees, and to pay an exhorbitant rate of interest. A fund for providing deserving persons with loans of this kind would be undoubtedly useful. We commend the idea to the notice of the Madras Teachers' Guild.

The usual College of Preceptors paper is on *The Use of Fairy Tales in Education*, by Mr. H. Holman, M. A. To our thinking the paper reduces the science of pedagogy to an absurdity. Educationists are more and more showing an inclination to try and take possession of the child body, soul and spirit, and mould him according to some preconceived idea of what a man should be. They are inclined to take the same fussy interest in children, and what they conceive to be their welfare as professional philanthropists do in humanity, especially poor humanity, and educationalists and philanthropists are each illustrating a phase of the prevalent anti-individualistic spirit. Properly speaking fairy tales have nothing to do with education, with that formal education, that is, that pedagogics should confine itself to. It seems at first sight therefore rather superfluous on Mr Holman's part to discuss their use in education, nor is it quite easy to understand what he means. He argues generally against the use of fairy tales in education. If by this he means that they should not form the substance of set "reading books" we think we agree with him. If he means that children should not be allowed to read or hear them told, we think he is simply straying out of his proper province. Rousseau, Herbert, and Frœbel, notwithstanding we are decidedly of opinion, that if all children who want fairy tales ought to have the best that their adult friends are capable of providing them with, the elaborate psychological arguments of Mr. Holman being quite unnecessary in view of the experience of the race, which seems to show that the gratification of a taste for the marvellous in youth has no assignable ill effect on the mature mind.

Mr. J. W. Phillips writes on *Geography through Map Drawing*. We have not space to follow his whole argument but we will quote one paragraph.

"A scholar can be considered to have drawn a map only when every line and dot that he puts into it represents an actual geographical image present to his mind and which has come to him from some independent source. If this be so, and if a map drawn by a scholar should, rightly considered, be a pictorial representation of the geographical knowledge in his possession, it follows that capability in drawing is a matter of slow growth, involving quite other things than the power of reproducing straight lines and curves."

INDIAN.

THE INDIAN MAGAZINE AND REVIEW, December. The December number of this Magazine opens with a review of Girls' Schools in the Madras Presidency, based chiefly on the reports of Mrs. Brander, Inspectress of Girls' Schools in the Central and Northern Circles. In the Northern Circle the number of schools and scholars had somewhat lessened, owing chiefly to the stricter enforcement of the rules of recognition and the curtailment's as to grants-in-aid and scholarships. In both the Circles the qualifications of teachers are improving. In the Central Circle the number of teachers holding trained certificates increased from 330 to 363 and in the Northern Circle from 80 to 105. In the Central Circle the increase in the fee income during the last two years amounted to Rs. 8,149. In the Home Educational Classes of the National Indian Association at Madras, the fee income amounts to more than a third of the expenditure. Reference is made in the article to the good that is being done by the Social Reform lectures to Indian ladies organised by Mrs. Brander. Mrs. Brander appeals urgently for increased help from England as municipal and local bodies have to meet the demands for aid to elementary boys' schools in the first instance and have little to spare for girls' schools. The other articles are " Sir Robert Sandeman and the Indian Frontier", by W. Irvine, " Society for the Encouragement and Preservation of Indian Art." Among the reviews one refers to a pamphlet by Pandit Bishan Narayan Dar, entitled " Signs of the Times." This is how Mr. Dar summarizes the mental changes coming over New India:—The education we receive is different from that which the preceding generation had received—and also from that we all receive at home. The old order had the merit that in it there was no antagonism between education and home influences. What the teacher, *Moulvie* or *Guru*, taught was reflected in the every day life of the people. The new order in this respect presents a moral and mental chaos. What the Universities teach the home contradicts, and the boy grows up with opinions which his early associations have done nothing to convert into real living convictions. His mental training imbues him with a deep and fervent love of change, but the household gods of his parents are custom and tradition. In almost every important respect he finds himself face to face with two antagonistic and incompatible systems, and both mould his character and opinions. The result is inconsistency between the conduct and the conviction of the man who is brought up under the dual system; the adoptions of opinions which do not influence conduct, and the growth of conduct which is not balanced by any well-formed and consistent set of principles.

Another cause is the suddenness and abruptness with which the change has been brought about. A new world of ideas has flashed upon the mind of the young generation; it is dazzled with excess of light. But the knowledge thus imparted rests as a foreign matter upon the mind—not enough time has elapsed for it to be assimilated and converted into intellectual muscle.

While this conflict of home influences with school education, and this sudden inroad of Western knowledge, have made Indian thought inconsistent and unstable, the political spirit, which has also come from the West, and has permeated the most advanced section of the community has made it superficial. Under the old *régime*, the question which touched men's deepest interests—political and social—were placed beyond the pale of thought by the despot and the priest.

The freedom of the Press and the limited concession of political liberty has given a new tone and direction to the Indian mind. The political spirit has made thought practical and quickened discussion. For the educated there is an inducement for thinking, because they can think on subjects of living interest. The newspaper is an educating agency, and has done much to raise the average level of popular intelligence. This is the good side of the change. The evil side is presented to us in the superficiality which marks the thought of the foremost Indian thinkers. In India, the most active intellects have been drawn towards politics, and the result is the absence of all serious thought upon moral and religious subjects.

INDIAN NEWS.

BENGAL.

The Annual Convocation for conferring degrees will be held on the 22nd February, 1896.

* * *

We are glad to learn that Sir A. A. Croft, K.C.I.E., has been reappointed Vice-Chancellor of the Calcutta University. There can be no doubt that his varied culture and learning as well as his intimate acquaintance with the working of the University make him one of the best Vice-Chancellors we have ever had.

* * *

A number of new rules have been introduced for conducting the Entrance, F.A. and B.A. examinations. In future there will be a

limit of time fixed for the re-examination as well as for the examination of papers. Four days will be allowed for one hundred papers and under, and one day additional for every twenty-five papers over one hundred, Sundays excepted. For each day by which the limit of time is exceeded, the remuneration will be reduced by sixteen rupees. It has also been decided that in the B.A. examination of 1897; the system of half papers will be adopted for pass papers in English and Philosophy.

* * *

But the charge which will provoke most criticism is the introduction of Head Examiners into the F.A. examination. This year Head Examiners have been appointed in English, Mathematics, Sanskrit, Physics, Chemistry, History and Logic, with duties corresponding to those of Head Examiners in the Entrance examination. The change has already called forth a protest from four members of the Senate, who in a communication to the Syndicate have suggested that the proper plan for securing uniformity in the method of marking answer papers would be to split up the papers into as many sections as there are examiners, so that each examiner might look over the answers of all the candidates in that section, and to form rules to ensure more frequent and regular meetings of examiners whilst the questions are in course of examination. The Syndicate, however, have not introduced these changes without very good reasons, and they mean to give them a fair trial.

* * *

The sum of Rs. 3,000 invested in Government Securities has recently been made over to the University for the purpose of founding a scholarship with the interest. The scholarship is to be awarded annually to the best student of the Konnagar School who passes the Entrance examination but fails to secure a government scholarship. The donor is the late Babu Bikarilal Basu, after whom the scholarship will be named.

* * *

The Central Institution has consented to follow the example of the three leading native colleges in Calcutta. In its new B.A. and Law Class the rate of fees will be four rupees a month.

* * *

The Government of Bengal, we are informed, has, at the recommendation of Sir A. Croft, the Director of Public Instruction, sanctioned the extension of the Physical Laboratory of the Presidency College, and the Public Works Department are now engaged in constructing an Astronomical Observatory and a complete Magnetic Observatory, fitted with the latest instruments of the Kew pattern. Suitable provision has also been made for the prosecution of original researches, a sum of one

thousand rupees having been granted for the construction of delicate apparatus devised by Professor J. C. Bose for the purpose of conducting his investigations, while a "Science Research Fund" has at the same time been established for the continuation of the further researches now in progress at the Laboratory.

BOMBAY.

Mr. N. A. F. Moos, L. C. E., B. Sc., F. R. S. E., F. C. S., Lecturer in Physics, Elphinstone College, Bombay, is granted furlough for one year from the date of his availing himself of it. Mr. F. M. Dastur, M.A., will in consequence to act as Head Master, College of Science, Poona, to which appointment Mr. Moos had been gazetted.

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Mr. Bomanji Dinshaw Petit has been elected by the Millowners' Association as their representative on the Board of the Victoria Jubilee Technical Institute *vice* Mr. Framji Dinshaw Petit, deceased.

* * *

Mr. Edalji Dorabji Talati, B.A., has been appointed substantive *pro tem* Head Master, Ahmedabad High School, *vice* Mr. U. N. Mehtagi, deceased, and Mr. Byramji Framji Patel, B.A., to be substantive *pro tem* Head Master, Surat High School, *vice* Mr. Talati. While Mr. Hormasji Kerbadji Baruche, B.A., acts as Head Master, Nadiad High School, during the absence of Mr. K. K. Kapadia who is acting for Mr. Moos at the Elphinstone College.

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Khán Sáhab F. M. Khimjiani, Deputy Educational Inspector, Broach, is granted one year's leave without allowances with effect from the date of the expiry of his present leave. Mr. N. B. Godbole, Vice-Principal, Poona Training College, is granted privilege leave for three months commencing from such date as he may avail himself of it. Mr. T. N. Kirtane acts for him.

* * *

In our February number will be found a complete summary of the University examinations, the full details of which are not yet available. On January 7th the results of the University School Final were issued, they showed that out of 1,649 candidates 415 passed.

* * *

The following have been appointed Fellows of Elphinstone College for 1896. T. D. Chitre has been appointed a fellow for a second year, while Dinsha Dorabji Kapadia, 1st in the 2nd class, B. A. 1895, Voluntary subject—Mathematics; Sorabji Furdunji Mulla, 3rd in the 2nd

class, B. A. 1895, Voluntary subject—History and Roman Law; Ichhashankar Jaishankar Chaya, 4th in the 2nd class B. A. 1895, Voluntary subject—Literature,—the last three being senior scholars of Elphinstone College; Pestonji Nassarvanji Vakil, 5th and Rastomji Bezanji Vacha, 6th in the 2nd class B. A. 1895, Voluntary subject—Literature, both of Elphinstone College, have been appointed for the first time.

* * *

Next month Arthur Barrett, B. A., (Lampeter) Professor of English Literature at the Deccan College, Poona, retires. His place will be filled by M. Macmillan, Professor of English Literature at Elphinstone College, who has been transferred to Poona, his place being taken by a new man from home. The latter is expected to arrive on February 13th. The impending departure of Professor Macmillan has spread general consternation amongst the students of Elphinstone College. No preceptor could be more careful and conscientious in his work or take a greater interest in the welfare of the College and its students. He joined the college in June 1878, and few teachers have been more thoroughly respected and looked up to by their pupils.

* * *

The Senate held its annual general meeting on Saturday, December 14th, and settled its bi-annual contest for the registrarship by re-electing Dr. Macdonald, who has successfully performed the duties for the last six years. His opponent was Dr. Peterson, registrar for 12 years before the present incumbent. It seems a pity that the Senate should thus be divided every other year into two hostile camps, not without considerable bitterness, owing to contest for the registrarship between these two doughty veterans. It is to be hoped that next time either that one of them will agree to withdraw or that some younger man is put forward and elected to the exclusion of both.

* * *

The meeting this year is said to have been the largest on record. 150 Fellows attended. After the election the Senate adjourned to Saturday, December 21st, a date which encroached on the Christmas Holidays and against which all teachers protested, but in vain. This is the second time that the Senate has met in what is properly vacation.

* * *

On Saturday, December 21st, the Senate met again and the Rev. Dr. Machichan introduced the new scheme for the B Sc. course. As regards the Intermediate (late First B. Sc.) examination the qualifying examination was as before the Previous or an examination corresponding thereto. The subjects I.—English (two papers as at the Intermediate in Arts); II.—Mathematics (2 papers); III.—Chemistry (2 papers and

a practical test); IV.—Physics (2 papers and a practical test); and V.—General Biology (one paper and two practical tests). The great change here was the introduction of English (I). This practically disenfranchises the College of Science, Poona, and throws the examination into the hands of the students of the Arts Colleges.

* * *

In the examination for the degree of B. Sc., (late 2nd B. Sc.) the changes were greater. Hitherto the student might select three out of nine subjects. In the new scheme he could take two out of seven, *viz.*, I.—Mathematics (which before formed two sections.); II.—Experimental Physics; III.—Chemistry; IV.—Botany; V.—Zoology; VI.—Animal Physiology; VII.—Physical Geography and Geology, Logic and Phychology which together formed the ninth section of the old scheme being omitted altogether. But perhaps the most important change of all, was that the Intermediate B.Sc., hitherto a one year's course, was now to be extended over two years, while the final B. Sc., was reduced from a two to a one year's course.

* * *

After some discussion and the rejection of various amendments and the alteration of some of the details under Mathematics the scheme was carried. The Poona Native Institution, of which an account will be given next month, was recognised in the Faculty of Arts for the purposes of the Previous examination for a period of three years. This terminated the business of the meeting.

MADRAS.

The Teachers' College Day was celebrated on the 24th ultimo at the College premises at Saidapet. There was a Student's Business Conference from 8 to 10 A.M., and a Public Educational Conference from 2 to 4 P.M. Two interesting papers were read at this conference, one by Mr. K. Shesu Iyer, B. A., L. T., on "A Plea for National Education in India", and another by Mr. V. S. Srinivasa Sastri on "The School-Master's Test." The Rev. F. W. Kellett, M. A., presided over the conference. At the public meeting at which Mr. G. Subramania Iyer presided, the following Toasts were proposed:—(1) The Educational Department, (2) Other Educational Agencies, (3) The Madras University, (4) The Teachers' College, (5) The Teaching Profession, (6) Our Absent Friends, (7) Our Guests.

* * *

It appears that during the past year no action was taken by municipal councils in furtherance of female medical education except in Sri-

rangam, where a woman was sent up to Madras for training as a midwife. That such action is required in the majority of cases is evident from the fact that at present special arrangements for affording medical relief to women exist only in the following thirteen municipalities,—Bellary, Coimbatore, Karur, Berhampur, Cocanada, Masulipatam, Dindigul, Madura, Nellore, Vellore, Salem, Mangalore, and Vizagapatam. His Excellency the Governor in Council desires to impress upon all municipal councils the necessity of taking prompt action in this matter, and to suggest that the best means of doing so is to endow scholarships in connection with the Countess of Dufferin's Fund.

* * *

The annual distribution of prizes to the pupils of the Wardlaw College was held on the 13th ultimo with Mr. J. H. Tremenheere, C. S., Collector of Bellary, in the chair. A novel feature was the introduction of athletic sports, for which prizes were awarded. The Report showed that considerable improvement had taken place in attendance and fees. Mrs. Tremenheere kindly gave away the prizes. The Chairman, in a short speech, congratulated the Principal and his staff on the useful work done, and paid a compliment to the Principal for the excellent discipline and tone of the College.

* * *

In a short proceedings, reviewing the Inspection Report of the Inspector of Schools, Western Circle, dated 28th October last, on the working of the Calicut Zamorin's College, the Director of Public Instruction speaks in very favourable terms of that institution. There has been a marked improvement, we read, in the College, in almost every respect since the date of the Director's previous visit. The buildings have been improved, the gymnasium has been put in order, a Cadet corps has been formed, games are growing in favour, the staff has been made more efficient, and the general tone of the institution has been raised. If His Highness the Zamorin perseveres in the same liberal policy, the college will soon become second to none on the West Coast. The Director also recommends very reasonably that the salary of the Principal who has done much to improve the College, and the salaries of his staff, who, the Principal says, have cordially assisted him in all matters pertaining to the good of the institution, should be raised.

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The annual distribution of prizes to the pupils of the two Caste Girls' Schools carried on in connection with the Free Church Mission, Chingleput, took place on the 19th ultimo in the Morehead Memorial Hall. There was a large attendance. The Rev. A. Andrew, Manager of the Schools, presided, and the prizes were given away by Mrs. Russell

to the Town School, and by Mrs. Andrew to the Nattam School. The girls were dressed in their gayest attire and some of them sang several songs and performed the kolattam very well. The Report of the Head Mistress was read, after which an address on Female Education was delivered by Mr. Ramanuja Chariyar, B. A., B. L., District Court Vakil.

* * *

Sometime ago we (*The Christian Patriot*) announced that there was a likelihood of the Sarah Tucker Institution at Palamcottah being raised to the status of a Second Grade College. We are glad to have the pleasure of announcing that this welcome change has already been effected, and that from this January classes will be opened for the instruction of First in Arts pupils. For some years past this school has been producing excellent results at the Matriculation examination, and the authorities concerned have done wisely in trying to meet the demand for higher education of females in Tinnevelly and elsewhere by raising the status of the College. The College has at present a lady graduate of the London University on the staff of teachers. The Sarah Tucker Institution will therefore be the first Women's College in Southern India.

* * *

The Revenue Test, Higher Grade, will be open only hereafter to (i) Graduates, (ii) Students of the College of Agriculture, who have passed the examination prescribed for admission to the College, and have obtained the Diploma in Agriculture at the Government Technical Examinations, and (iii) Candidates who have passed the First Examination in Arts and have obtained the Diploma in Commerce at the Government Technical Examinations. The Criminal Judicial Tests, Higher and Lower Grades, will be open only to (i) Candidates who have passed the First Examination in Arts, (ii) Students of the College of Agriculture who have passed the examination prescribed for admission to the College and have obtained the Diploma in Agriculture at the Government Technical Examinations, and (iii) Candidates who have passed either the Upper Secondary or the Matriculation Examination and have obtained the Diploma in Commerce at the Government Technical Examinations.

* * *

At a meeting of the General Committee of the Madras Athletic Association, held at the Old College Hall, the members of the Committee met Colonel G. M. J. Moore, C.I.E., President of the Madras Municipality, and discussed the question of the proposed athletic ground in the People's Park. The Committee requested Colonel Moore to intimate to the Municipal Commissioners that the Association was willing to throw open the proposed ground to the public, and that only a small fee would at any

time be levied to contribute towards the upkeep of the ground. In regard to the Association's annual competition, it was decided to give a general trophy to the winning team in the open athletics, besides a small memento or medal to each of the winners. The Committee also resolved to devote, if necessary, Rs. 350 for prizes to supplement the various special prizes given by private persons.

* * *

We gather the following particulars from the Proceedings of the Director of Public Instruction on the Report of the S. P. G. College, Trichinopoly, for the year 1894-95. There was a fall in the strength of the College from 170 to 155, the decrease being confined to the B. A. classes. Three tutors were employed during the year to assist the Professors in English, Mathematics and History, in class and examination work. There was a decided improvement in the results obtained at the B. A. Degree examination, except as regards the History Branch of the Science division. There is a hostel in connection with the College for Native Christian students, known as the Caldwell Hostel.

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The annual celebration of the Madras Christian College Day took place on the 26th ultimo. In the early morning the students past and present of the College had breakfast together. In the forenoon the Students' Business Conference was held; at midday the students dined together; and in the afternoon a musical party and conversazione was held in the College Hall. The business of the day terminated with the usual public meeting, at which a number of toasts were proposed. The meeting was held in the Anderson Memorial Hall, which was crowded with a large gathering of students past and present, Professors and teachers, and others interested in the institution. The proceedings commenced with the singing of the "College Day Ode," which was composed and set to music by Mr. W. B. Morren. It was sung by a picked choir of some of the Professors and students, conducted by Mr. Morren. The usual toasts were then proposed.

* * *

Government has approved Dr. Duncan's proposals to throw open the Revenue Test, Higher Grade, to holders of the Diploma in Commerce, provided they have passed the F. A. examination of the University, and also to admit to the Criminal Judicial Tests, Higher and Lower Grades, holders of the above diploma, provided they have passed either the Upper Secondary or the Matriculation examination. In submitting his proposals, Dr. Duncan remarked :—" One of the main reasons for the slow growth of technical education in this country is the want of adequate encouragement to persons who have pursued this branch of

education. General education qualifies a person for the public service, but mere technical training possesses no such value in the eyes of the public. Few people have yet realised the full intrinsic merit of technical education and fewer have sought a knowledge of technical subjects for their own sakes. Even where some interest was roused through extraneous influences and the novelty of the measure, that interest has shown a tendency to languish."

* * *

The following changes have been sanctioned in the Lower Secondary examination:—Pupils of the second form, who may be examined for results grants in January, February or March, and who may thereafter cease to attend a school, will be admitted as private candidates. The restriction as to age, has been omitted. The provision as to vaccination, &c., has been inserted. The words "plain and fancy" have been omitted after "needle-work." It was recommended by the Conference which sat last April that all candidates might be allowed the concession granted to Hindu and Muhammadan female candidates of bringing up English as a second language. This has been provided for in the revised article. Under Geography [*a*] "and the seasons" have been added. The curriculum in needle-work has been re-arranged. The reference to the Government Technical examination has been left out. The words "compulsory part of the" have been inserted before "examination," at the end of the article.

PUNJAB.

The appointment of Mr. C. A. Roe, Chief Judge of the Chief Court of the Punjab, as Vice-Chancellor of the Punjab University, has given general satisfaction, although, until very recently, his name was not mentioned much in connection with the office. As Dean of the Law Faculty of the University, Mr. Justice Roe has shown much interest in University matters; and, like his predecessor, Mr. Mackworth Young, he is safe and hard-working. The only drawback, indeed, is the exceedingly heavy work which already falls to Mr. Roe on the bench of the Chief Court, to which he has only just been appointed Chief Judge, an office which is admittedly a poor makeshift for that of Chief Justice of a High Court.

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As Sir William Rattigan, Kt., LL.D., cannot be present at the Convocation on the 6th instant, the Degree of Doctor of Laws of the Punjab University will be conferred upon him *in absentia.*

In addition to this Degree, Sir Dennis Fitzpatrick, as Chancellor, will also confer the following:—

Master of Oriental Learning (Arabic) 1, Doctor of Oriental Learning 3, Master of Arts (English) 6, Master of Arts (Sanskrit) 1, Master of Arts (Mathematics) 1, Master of Arts (History) 2, Master of Arts (Physics) 2, Bachelor of Arts 74, Bachelor in Medicine 1, Bachelor of Laws 5. Besides these, there are twelve medals, eleven scholarships and three special prizes to be awarded.

* * *

After consulting the Professor of History, Government College, Lahore, (Mr. P. G. Dallinger), the Professor of History of the Forman College, Lahore, (Mr. M. C. Mukerji), and Lala Hans Raj, Principal, Dayanand Anglo-Vedic College, Lahore, the Arts Faculty of the Punjab University has adopted Hunter's *Brief History of the Indian People* as the most suitable text-book of History for the Entrance examination. The gentlemen consulted were unanimous on the merits of Sir W. Hunter's work.

* * *

The Punjab Government has at last withdrawn the grant of Rs 200 per mensem made from Provincial Funds to the Law School of the University, as the institution has now become more than self-supporting. The decision will interfere considerably with a proposal which has recently been brought forward by the Rev. S. S. Allnutt, Principal of the St. Stephen's College, Delhi, to open law classes in connection with that institution. Apart from the financial aspect, there will be many difficulties to be surmounted before Delhi can have its Law School; but why it wants one at all it is difficult to imagine. One would have thought that a large school at Lahore, with its ever increasing Bar, would be enough for a Province like this.

* * *

In another direction, also, the Punjab Government is withdrawing Provincial Funds from expenditure on Education, on the ground that the income from fees is increasing. In 1893, a grant of Rs. 1,22,251 was made to Municipalities for the support of district and other schools transferred to them in 1886-87, and now, after three years, it is found practicable to cut this down by Rs. 12,481. This seems a small matter, but to be able to reduce a grant by one-tenth in three years, simply owing to the steady progression of school fees, gives another aspect to it. The total expenditure on Education in the Punjab amounts to some 28 lakhs, Provincial Funds contributing 8 lakhs, and as time goes on local fund contributions will increase in far greater proportion to the provincial grant. It is in the Education Department, more than

in any other, that we see the principles of local self-government pushed to its fullest extent.

* * *

The Director of Public Instruction received a somewhat unusual request a short time ago. The General Secretary, Kayastha Temperance Societies of India, Gwalior, asked the Director to issue a circular to all officers and subordinates in the Education Department to the effect that abstinence from all intoxicants be made one of the conditions to be observed by boys before they are admitted into schools and colleges. The Secretary was informed in reply that all care is taken in the Punjab to influence the conduct of scholars for good, in and out of school, and that the praiseworthy intention of the Kayastha Temperance Societies of India is fully met in this Province by the existing regulations.

* * *

Sir Dennis Fitzpatrick's review of Dr. Sime's Annual Report on Public Instruction for the year 1894-95 has just been published. The Report itself has not yet been issued, but it will be noticed in future notes. To judge from the review, however, the record for the year is an eminently satisfactory one; and the Lieutenant-Governor most deservedly remarks at the conclusion that "the cordial thanks of Government are due to Dr. Sime for the very great interest he takes in his work, and the impartiality he displays in dealing with all classes;" and, further, it is noted that "the general thoroughness of inspection in all grades is also deserving of commendation."

* * *

The Report is a quinquennial one, dealing with the five years ending 1894-95, and during that period the expenditure on Education has increased by nearly 3½ lakhs. The income from fees now stands at nearly 6 lakhs, or over 21 per cent. of the total cost, and there has been an increase in fee payment of nearly two lakhs a year, a fact, combined with the opening of unaided schools, which shows that the people themselves, as one of the Inspectors truly remarks, are rapidly learning the lesson of self-help in the matter of education.

* * *

The most striking feature in the progress of the past quinquennial period is, the Lieutenant-Governor notes, the increased activity in favor of the extension of education on the part of the people themselves, and the private enterprise displayed in the establishment of schools is remarkable and very encouraging. No doubt, it is added, in many instances the motives of the promoters may be mixed, but in any case the schools are established, and a great good results both to education and to the cause of self-help.

REVIEWS OF BOOKS.

SAGUNA. By Mrs. S. Satthianadhan. Second Edition. Madras: *Srinivasa Varadachari and Co.*

Saguna has often been described as the first work of fiction in the English language written by an Indian lady. If we may judge from the account of Mrs. Satthianadhan's life given by Mr. Arundel at the Memorial Meeting—a report of which is subjoined to this edition—it is to all intents an autobiography and not a work of fiction at all. The recognition of this fact will in no way diminish its reputation, for while as the autobiography of a striking personality,—one who deserves to be honoured as a pioneer in the 'Indian New Woman' movement—it will have a permanent value, as a novel it could never lay claim to much merit and would soon be deservedly forgotten. Its autobiographical character however makes reviewing it a delicate task. Under this aspect the perfect candour shown is very striking and instructive. We see the child ambitious of knowledge and somewhat jealous of the greater advantages of her brothers. We see the girl in her teens, 'anxious to be thought clever,' more than a little priggish, and somewhat insubordinate. Growth in years and in knowledge of the world combined with religious development to mould her into the gentler and humbler woman that she afterwards became.

The subject of the book has much to say of the Christian surroundings of her childhood and youth. In this *Journal* it would be out of place to comment on this aspect of the story. But there are few if any of our readers to whom the unfolding of the life of a girl who could hold her own with men—its ambitions, its temptations and dangers, its successes, its womanly elements—will not be of deep interest. It is essentially a life-like sketch of the New Woman of India in relation to Christianity and Education.

Apart from this, the chief value of the book lies in the sketches of native female life given in its earlier chapters. The rather pattering style in which the book is written is precisely that most appropriate to these.

Mrs. Satthianadhan's work was that of the pioneer. As a writer of fiction she will easily be surpassed, alike in mastery of English, in narrative power, in characterisation and in arrangement and invention—perhaps in every quality except the appreciation of and ability to describe natural scenery. But her example as one who dared to place her feet

somewhat in advance of the women of her time ought not to die, and if *Saguna* does anything to inspire sympathy with the efforts of India's womanhood to rise, we may be sure that her desires concerning it will be abundantly satisfied.

SHORT HISTORY OF GREECE. By W. S. Robinson, M. A. London: *Rivington, Percival and Co.*, 1895. Price 3*s*.

This is the book we have been needing. For the F. A. course it seems to be exactly suited, and we hope if the University is to suggest any text-book at all it will recommend this without delay. It is clear and admirably arranged; maintains its proportions, and contains no less than 30 maps and plans. It may be regarded as the resultant of the experience of the Greek History teaching of many years. That it is accurate and up to date no further guarantee is needed than that its proofs have been read by Dr. Evelyn Abbott.

THE RETREAT FROM SYRACUSE. Edited by W. H. D. Rouse. London: *Rivington, Percival and Co.*, 1895.

Just the book for its purpose. Mr. Rouse has taken the Fifth Form through the chapters in Thucydides VII., describing the Athenian retreat from Syracuse, and this little volume is the result of his experience. The publishers seem determined to maintain their pre-eminence in the neatness and clearness of their School editions.

ESSAYS IN ENGLISH HISTORY. By R. P. Karkaria. Bombay, 1895.

A non-descript book the aim of which seems to be to prepare students to answer such questions as 'Describe the Feudal System' or 'What do you know of Becket?' The application of the word *Essays* to these scrappy attempts at cramming is a degradation which we should not have expected Mr. Karkaria to put upon it. Its use, moreover, would seem to have led him to stint his compilation in facts and overdose it with opinions.

THE REVOLUTIONARY AND NAPOLEONIC ERA. By J. H. Rose, M. A. Cambridge Historical Series. *Cambridge University Press.*

It was but the other day that we welcomed the appearance of an English "Industrial History" in the Cambridge Historical Series; we have now to note with equal satisfaction the publication of a companion volume dealing with the period 1789—1815. It must be a matter of congratulation to all Cambridge men that these evidences of the vigour

of her history school are forthcoming; too many of the historical works of recent years have issued from the sister University. The scheme of the present series is an excellent one, seeking as it does to portray the periods of Modern European history, and trace the development of contemporary circumstances from past conditions. As the plan of the series permits the history of each of the more important European countries to be treated in separate volumes considerable detail becomes possible; while Dr. Prothero's editorship is a sufficient guarantee that the work will be carried out with the thoroughness of research and soundness of judgment that have long been associated with his name. The series in short promises to be an excellent one, reflecting credit on the school of Seeley.

Turning to the volume before us, we note that somewhat of a departure has here been made from the main plan of the series. The Revolutionary and Napoleonic epoch must be treated on a broad European basis for its salient features to be recognisable. The play of international action and reaction becomes so frequent and far-reaching during this time of crisis that it is hopeless to attempt to understand the period save by constant reference to Europe as a whole. In this respect the Revolutionary Era is closely analogous to the movement of the 16th century with which one naturally compares it. We are glad to observe that Mr. Rose is fully alive to this characteristic of the period with which he deals. His object throughout has been to "exhibit the influences in France and Europe tending to overthrow the old systems of government and society, to trace, even amidst the apparent chaos of the French Revolution, the growth of forces which tended towards a strongly centralised government and autocracy, to describe Napoleon's work of destruction and reconstruction, and finally to analyse the character of the new national impulses which overthrew his domination." The key to the period is to be found, as he rightly observes, in the conflict with monarchial Europe into which France was plunged at an early stage of the Revolution. Such a struggle was of course inevitable resulting as it did from a mutual hostility of systems and ideas. Lightly and inconsiderately as at first sight the Girondists seem to have involved France in a war with Austria their instincts were correct. It was there that the representative of the old order, the successor of the Holy Roman Empire, was to be found. The Girondists live in history as monuments of eloquence and futility; let them at least be given credit for the single occasion on which they seem to have understood the spirit of the times. When at Valmy and Jemmappas Dumouriez had shown the old-world monarchs what revolutionary fervour could accomplish "a new epoch in the

history of the world," as Goethe observed, had begun. For Revolutionary France also a fresh era then commenced; for with the outbreak of the war set in that movement towards absolutism which, passing through the Terror and Directory stages, culminated in the military despotism of Napoleon. In this respect, as Mr. Rose is careful to note, the war worked with different effects on France and Europe; in the one it curbed, in the other extended the principles of revolution.

It will be seen that the spirit in which Mr. Rose approaches his subject is eminently satisfactory. He seeks to study Revolution in its European aspects and to connect its earlier and later phases. There is far too general an impression, for which Carlyle perhaps is mainly responsible, that the Revolution ended with Robespierre's fall. In Mr. Rose's pages the temptation to dwell on what may be called the picturesque side of the Revolution is steadily resisted; instead thereof we have a work of scientific history seeking to trace cause and development for which both student and teacher alike will be grateful. An excellent feature of the work is the list of authorities appended, affording guidance to the reader wishing to carry the subject farther. This is as it should be: for the highest function of any book is to stimulate study.

THE RED TRUE STORY BOOK. Edited by Andrew Lang. London: *Longmans, Green and Co.*, 1895. 6*s.*

This handsome and well illustrated volume will delight many a boy who is disposed to revel in stories of adventure by flood and field. It cannot be said that all the stories are true, because we see that a Gascon story of witchcraft aud several Norse Sagas find a place in the book, but it will be no less acceptable on that account to any healthy mind. The one idea that occurred to us in perusing this book was that human nature is much the same in all ages. The spirit that stirred Olaf in A. D. 1000, when surrounded by hostile Danes and Swedes on the stormy Cattegat, is the spirit that animated Major Wilson in A. D. 1893, when his patrol died, standing back to back, facing the Matabele, whose battalions covered the African veldt. Both those stories are told and well told in this book. So also the successful attempt of Pizarro to conquer Peru is a good parallel to the unsuccessful attempt of Prince Charles Edward to overthrow the government of George II. in Britain. We have never seen the story of 1745 told better than it is told here. Readers of the Strand Magazine and admirers of the exploits of Brigadier Gerard may perhaps not know that the original of that character is General Marbot, an aide-de-camp of the Emperor Napoleon. This book narrates three of the most thrilling incidents in General Marbot's career. As these are taken

from the General's autobiography of course they must be true, but they are far beyond anything that the fictitious Brigadier Gerard has yet done in the pages of the Strand Magazine. This book, however, is not wholly made up of stories of military prowess. The most pathetic story in the book is that of Burke and Wills, the Australian explorers. They penetrated across Australia to the Gulf of Carpentaria and returned to the spot where a party was to meet them with provisions and transport Utterly worn out they arrived at this spot on April 21st 1861 only to find the camp abandoned and that very date freshly cut on the bark of a tree with the word "Dig." They dug at the foot of the tree and found a bottle containing a letter to say that the party, despairing of their return, had marched south that morning. The starved and ragged explorers had no strength left even to attempt to overtake the party and they resigned themselves to death in that l nely desert.

We are unwilling to point out any flaw in so good a book, but we think that the story of the mutiny on the Bounty might have been more carefully edited. We read of the mutiny at sea on April 28th 1787, and there is a very good description of the voyage of Captain Bligh and his party nearly four thousand miles in an open boat, but not a word more is said about the ship until we read, "It will be remembered that nothing had been heard of the Bounty since she was seen off Point Venus on the morning of September 22nd, 1789." The reader cannot possibly remember anything of the sort for no mention was made of the ship after the date of the mutiny. Then follows a most interesting narrative of two British cruisers in the South Pacific in 1814 stumbling on Pitcairn Island, three degrees out of its place as marked on their old charts, and of the surprise of the British sailors when a canoe put off from the shore with white men who hailed the ships in English. These turned out to be the descendants of the mutineers of the Bounty. Here the narrative says that one of these men was the son of Young, a midshipman of the Bounty, but on a previous page the names are given of the two midshipmen who took part in the mutiny and neither name is Young. These inaccuracies may seem to be trifling, but they are noticed and they detract from the value of the narrative.

THE EXCELSIOR ELEMENTARY ATLAS, with index. By G. W. Bacon, F. R. G. S. London: *G. W. Bacon and Co., Limited.*

Mr. Bacon says it has been his aim to make this "An Unrivalled Work, as an Elementary School Atlas," and as for one shilling he has provided thirty-two coloured, and twenty-nine supplementary maps, we are not disposed to dispute his success. We cannot help noting how-

ever the fallacy of classification involved in the terms coloured, and supplementary—the latter are just as much coloured as the former, "coloured" is unfortunate as it suggests the penny plain, two pence coloured, pictures of theatrical villains. For the rest the maps are reasonably clear and well printed, but the atlas except for its cheapness, does not seem to us any better than similar publications of twenty-five years ago, and surely a quarter of a century ought to show some advance in map drawing.

MACMILLAN'S GEOGRAPHY READERS, BOOK VII. The United States. Ocean Currents and Tides. London: *Macmillan and Co.* 1*s*. 6*d*.

As usual, this volume of series contains much information about the great Republic in a popular form suited for the use of junior classes. The book is more a complete guide book than a Geography and may be used with profit by adults. In so admirable a work it seems ungracious to find fault but we did notice some flaws. On page 8 we read "owing to their immense size the United States includes all varieties of climate." It is not clear to what noun the pronoun their refers. If to States then the verb ought to be plural. On page 29 is a narration of the various additions to the territory of the Union which omits to say that in 1848 California and New Mexico were ceded by Mexico. On page 20 the narrative of the voyage of the Pilgrim Fathers in the *Mayflower* ends with this amazing passage. "The Pilgrims, sailing along the shores of North Carolina, were, by a favouring storm, driven into the magnificent Bay of Chesapeake. They had selected for their settlement the country near the Hudson, the best portion on the whole coast, but were conducted to the most barren parts of Massachusetts. After a boisterous voyage of sixty-three days, during which one person died, they espied land; and in two days more cast anchor in the harbour of Cape Cod."

We beg to suggest that in the next edition this passage be entirely rewritten. "Favouring storm" is not a usual phrase. If the Pilgrims were driven into the Bay of Chesapeake how did they first espy land near Cape Cod? How or when did the Pilgrims select the country near the Hudson? Who conducted them to Massachusetts? The words reminds one of a Cook's Tourist. Why is the fact that one person died during the voyage thought worthy of mention? What is meant by the harbour of Cape Cod? How can a cape be a harbour?

On page 50 in the interesting description of the commencement of steam navigation, a competition between the shipbuilding yards of Greenock and Bristol is called a competition between Clyde and Avon. It would be more correct to say that Bristol is on the Severn.

The second portion of the book gives clear information about ocean currents and tides. A Hindu knows little about the sea and the rise of the tide on this coast is slight and attracts little notice, so that nothing puzzles a Hindu student more than does any allusion to tides. This portion of the book will be most useful in teaching what the tide is.

THE STORY OF BARLAAM AND JOASAPH: BUDDHISM AND CHRISTIANITY. Edited by K. S. Macdonald, M. A., D. D., Fellow of the Calcutta University. With philological introduction and notes to the Vernon, Harleian and Bodleian Versions, by the Rev. John Morrison, M. A., B. D., Principal of the General Assembly's Institution, Calcutta. Calcutta: *Thacker, Spink and Co.*, 1895.

This legend of an Indian Prince, whose father purposely brought him up ignorant of the existence of disease and death in this world, and of the result upon his character of this knowledge, suddenly acquired in early manhood, was a popular tale in medieval Europe. It was commonly said that this legend was introduced to European readers in the writings of St. John of Damascus, a learned Orientalist who died A. D. 780, but this idea has long been discredited. In the last century, the Rev. Alban Butler published his well known *Lives of the Saints* and in a footnote to the life of St. John of Damascus, May 6th, we find the following: "Several works which some have by mistake attributed to this father. Among these we have the history of Barlaam, a holy hermit, and Josaphat, the son of an Indian king, whom he instructed in the faith and in virtue, after his father is said to have educated him in a palace, where, during his youth, he never heard that men die. This life is ascribed to St. John Damascen in the English and some other editions: but in old manuscripts is attributed to other authors, and seems not to be the work of this father. It is entertaining and ingenuous and contains pious reflections. Though Barlaam and Josaphat are names of two holy persons, the greater part of this piece is thought to be a parable or allegory. See Huet sur l'Origine des Romances, p. 60." Dr. Macdonald, in an opening note, tells us that in 1893, when reading in the British Museum he specially interested himself in this story and, on his return to Calcutta, being a Member of the "Board of Studies in England" he set this story as one of the books for the Premchand Roychand Studentship Examination, 1895. His colleagues seem to have objected that the book was not available to students and Dr. Macdonald promised that it would be ready in time. Thereupon Mr. Morrison annotated the texts and Dr. Macdonald wrote an introduction and the result is this University text-book.

Mr. Morrison commences his notes by saying that a student should take up this legend only after he has a definite and fairly extensive knowledge of Anglo-Saxon and of the language of Chaucer. This took us by surprise and we imagine that this warning on the threshold would lessen the number of readers had not this book been prescribed as a University Text-Book. The notes themselves appear to be valuable. Perhaps a little more life and illustration might have been put into them to make them adhere to the memories of students. Thus, for instance, while explaining that the Anglo-Saxon root *tend*, to ignite, to kindle, is found in the English word tinder, Mr. Morrison might have gone on to say that the *tænd-stikker* match boxes, which are now seen in every village in India, show the Norwegian name for fire-sticks.

We regret that we cannot give any word of praise to Dr. Macdonald's introduction. This book is a text-book which the Calcutta University compels students in Early English to read and polemical theology ought not to find a place therein. A perusal of this introduction leads us to suspect that Dr. Macdonald has abused his position as a member of the Board of Studies and has selected this work as a text-book only in order that he may break a lance with his theological adversaries. Dr. Macdonald himself says: "The introduction is mainly devoted to the rectifying of what I believe is a total misapprehension of the facts of History with reference to the supposed influence of Buddhism on the literature of the West." In pursuance of this object Dr. Macdonald, on the first page of his introduction, says that this story is Indian or Buddhistic and instantly digresses to controvert those who say that the Christian religion has derived any ideas from Buddhism. This digression extends over fifty pages. It is an able essay and we entirely agree with Dr. Macdonald's main contention that some slight resemblance between passages in Buddhistic writings and passages in the New Testament does not prove that the one is a copy of the other, but we think that this display of erudition would have been more in place in an avowedly theological publication. Having disposed of his Buddhistic adversaries Dr. Macdonald on page 51 executes the most astounding tergiversation. The Buddhistic weapons which for fifty pages he has parried he now turns, for ten pages, against the Roman Catholics. It seems that a similar story of a youth, brought up in ignorance, startled by his first knowledge of death and adopting an ascetic life, is told of Buddha himself. Therefore, says Dr. Macdonald, Joasaph is clearly Buddha. The name *Buddha* is sometimes written *Bodisat*, which in Arabic would be *Tudasatf*, and a Greek Christian would readily change this to *Joasaph* or *Josaphat*. How very simple! Then Dr. Macdonald elaborates an idea which Sir Max

Muller put forward in his Chips from a German Workshop, IV. 186. Barlaam and Josaphat are mentioned in the Roman Martyrologium on November 27th. Therefore the Church of Rome has canonised Buddha! Dr. Macdonald is not content to stop here. On page 53 he gives a gratuitously offensive footnote upon the Martyrologium of the Latin Church, in which he points out that there is a St. Bacchus on October 7th, that St. Dionysius on October 9th is also Bacchus and that St. Swithin is none other than Satan. We have no wish to enlighten Dr. Macdonald regarding the officer Bacchus, who suffered martyrdom in Syria under Maximian, and is commemorated on October 7th, or regarding St. Dionysius, Bishop of Paris, whose festival is kept on October 9th, or regarding St. Swithin, Bishop of Winchester, from A.D. 852 to 862, but Dr. Macdonald ought not to drag his private opinions upon these worthies into a University Text-Book on Philology, which must perforce be read by students of all religions and denominations.

Further, we may remark that Dr. MacDonald is not accurate in the use of the word canonised. Solemn canonisation of a Saint in the Roman church came into use in the twelfth century and is now conducted under strict rules laid down by recent Popes. The retention of a name in the martyrologium is not equivalent to canonisation. The martyrologium has been revised, and may again be revised, and it is possible that at the next revision the names of Barlaam and Josaphat on 27th November may disappear.

MATHEMATICS.

Solutions to Questions.

68. *(V. Ramaswami Aiyar, M. A.)* Show that the sum of the $(r-1)^{th}$ powers of the first n natural numbers is equal to $D_r/\lfloor r$ where D_r is the determinant of the rth order formed as shown below: (the numbers in any column are all but the last of the corresponding series of binomial coefficients.)

$$\begin{vmatrix} n & -n^2 & n^3 & -n^4 & \dots \\ 1 & 1 & 1 & 1 & \dots \\ 0 & 2 & 3 & 4 & \dots \\ 0 & 0 & 3 & 6 & \dots \\ 0 & 0 & 0 & 4 & \dots \\ 0 & 0 & 0 & 0 & \dots \end{vmatrix}$$

Solution by K. V. Natesa Aiyar, B.A., and C.S. Mahadeva Aiyar, B.A.

Writing the determinant of the rth order fully and expanding in terms of the numbers of the last column, we have

$D_r = {}_rC_2\ D_{r-1} - {}_rC_3 \cdot (r-1) D_{r-2} + {}_rC_4 (r-1)(r-2)\ D_{r-3} \ldots\ldots$
$\ldots\ldots + (-1)^{r-3} r.\ (r-1)(r-2) \ldots\ldots 3D_2 + (-1)^{r-2} (r-1)\ (r-2)\ 3.2.n$
$+ (-1)^{r-1}.\ (-1)^{r-1} n^r\ (r-1)\ (r-2) \ldots\ldots 2.1$

$$\text{or,}\quad n^r = \frac{rD_r}{r!} - {}_rC_2 \frac{D_{r-1}}{(r-1)!} + {}_rC_3 \frac{D_{r-2}}{(r-2)!} - {}_rC_4 \frac{D_{r-3}}{(r-3)!} + \ldots\ldots\ldots\ldots$$
$$+ (-1)^{r-2} r \frac{D_r}{2!} + (-1)^{r-1} n.$$

Compare this with

$$n^r = r.S_{r-1} - {}_rC_2\ S_{r-2} + {}_rC_3\ S_{r-3} \ldots\ldots + (-1)^{r-2} r \cdot S_1 + (-1)^{r-1} n.$$

where Sk denotes the sum of the kth powers of the first n natural numbers. It is evident that the required result may be established by Mathematical Induction, as it is clearly true for the squares and the cubes of the natural numbers.

71. (*K. V. Natesa Aiyar, B. A.*)

If $\left(\frac{1-px}{1-qx}\right)^n = 1 + a_1 x + a_2 x^2 + a_3 x^3 + \ldots\ldots\ldots\ldots$

prove that $(r+1)\ a_{r+1} - a_r\ [p(r+n) + q(r-n)\ ] + (r-1)\ pqa_{r-1} = 0.$

Solution by A. Radhakrishna Aiyar, B.A., and C. S. Mahadeva Aiyar, B. A.

Denoting the given function by y and taking the logarithmic differential, we have $\quad y_1(1 - \overline{p+q}x + pqx^2) + yn(p-q) = 0.$

Differentating r times and putting x equal to 0,

$$(y_{r+1})_0 - (y_r)_0[r(p+q) - n(p-q)] + (y_{r-1})_0 r(r-1)pq = 0.$$
$$\therefore \quad (r+1)a_{r+1} - a_r[p(r-n) + p(r+n)] + (r-1)pq - a_{r-1} = 0.$$

Note by the Editor.—The required relation may be easily obtained by substituting the values of y and y_1 in the equation

$$y_1(1 - \overline{p+q}x + pqx^2) + yn(p-q) = 0,$$

and equating to zero the coefficient of x^r.

73. (*S. Padmanabha Aiyar, B.A.*) If n_1, n_2, n_3, n_4 be the lengths of the four normals and t_1, t_2, t_3 the lengths of the three tangents drawn from any point to the curve $ay^2 = x^3$, then $27 n_1 n_2 n_3 n_4 = a t_1 t_2 t_3$.

Solution by C. S. Mahadeva Aiyar, B.A., and K. V. Natesa Aiyar, B.A.

$X.3x^2 - Y.2ay - ay^2 = 0$ is the equation of the tangent at the point (x,y) of the curve $x^3 - ay^2 = 0$

$\therefore\ 3hx^2 - 2aky - ay^2 = 0$ is the condition that the tangent may pass through (h,k).

Transposing, squaring, and substituting x^3 for ay^2, we get

$$x(3h - x)^2 = 4ak^2, \quad \text{or} \quad x^3 - 6hx^2 + 9h^2x - 4ak^2 = 0.$$

This equation gives the abscissæ of the three points the tangents at which pass through (h,k).

$\therefore \quad \Sigma x_1 = 6h, \quad \Sigma x_1 x_2 = 9h^2, \text{ and } x_1 x_2 x_3 = 4ak^2.$

Now $\quad t^2 = (x-h)^2 + (y-k)^2 = (x-h)^2\left(1 + \dfrac{9x}{4a}\right)$

$$\therefore \quad t_1 t_2 t_3 = \text{P}(x_1 - h)\, \text{P}\left(1 + \frac{9x_1}{4a}\right)^{\frac{1}{2}}$$

$$= \frac{(ak^2 - h^3)}{a}(16a^2 + 216ah + 729h^2 + 729k^2)^{\frac{1}{2}}.$$

Again, the condition that the normal at (x,y) may pass through (h,k) is
$$3kx^2 - 3x^2y + 2ahy - 2axy = 0.$$
i.e.
$$9k^2x^4 = y^2\,(3x^2 - 2ah + 2ax)^2$$
or $\quad 9x^4 + 12ax^3 + (4a^2 - 12ah)\,x^2 - (8a^2h + 9ak^2)\,x + 4a^2h^2 = 0$

gives the feet of the normals from (h,k)

$$\therefore \quad \Sigma x_1 = -\frac{12a}{9}, \quad \Sigma x_1 x_2 = \frac{4a^2 - 12ah}{9},$$

$$\Sigma x_1 x_2 x_3 = \frac{8a^2h + 9ak^2}{9} \quad \text{and} \quad x_1 x_2 x_3 x_4 = \frac{4a^2h^2}{9}.$$

Now $\quad n^2 = (x-h)^2 + (y-k)^2 = (x-h)^2\left(1 + \dfrac{4a}{9x}\right).$

$$\therefore \quad n_1 n_2 n_3 n_4 = \text{P}(x_1 - h)\,\frac{16a^2}{81\sqrt{x_1 x_2 x_3 x_4}}\,.\,\text{P}\left(1 + \frac{9x_1}{4a}\right).$$

$$= h(ak^2 - h^3)\,.\,\frac{16a^2 \times 3}{81.\times 2ah}.\frac{1}{8a}\,(16a^2 + 216ah + 729h^2 + 729k^2)^{\frac{1}{2}}$$

$$= \frac{ak^2 - h^3}{27}\,(16a^2 + 216ah + 729h^2 + 729k^2)^{\frac{1}{2}}.$$

$$\therefore \quad at_1 t_2 t_3 = 27 n_1 n_2 n_3 n_4.$$

75. (*B. N. Cama.*) If u be a function of a given by the equation, $u = \displaystyle\int_{ma}^{na} \frac{\sin ax}{x}\,dx.$, show that the values of a which make u a *maximum* or *minimum* are $0, \left(\dfrac{\pi}{n+m}\right)^{\frac{1}{2}}, \left(\dfrac{2\pi}{n-m}\right)^{\frac{1}{2}}, \left(\dfrac{3\pi}{n+m}\right)^{\frac{1}{2}}, \left(\dfrac{4\pi}{n-m}\right)^{\frac{1}{2}}, \ldots\ldots\ldots\ldots$

Solution by A. Radhakrishna Aiyar, and others.

Applying the rule for differentiation of a definite integral, where the limits are variable, (*Williamson's Integral Calculus, Art.* 114),

$$\frac{du}{da} = \int_{ma}^{na} \frac{x \cos ax dx}{x} + \frac{n \sin na^2}{na} - \frac{m \sin ma^2}{ma} = \frac{2}{a}\,(\sin na^2 - \sin ma^2).$$

$\therefore$ the values of a which make u a maximum or minimum are given by the equation $\sin na^2 = \sin ma^2$ or $a^2\{n - (-1)^r m\} = r\pi$;

$$\therefore \quad a = 0, \left(\frac{\pi}{n+m}\right)^{\frac{1}{2}}, \left(\frac{2\pi}{n-m}\right)^{\frac{1}{2}}, \ldots\ldots\ldots\ldots$$

84. (*K. C. Ramamurti.*) Three persons A, B, C went to a forest to collect honey, each having a vessel and a measure. A's vessel and

measure can hold 52 seers and 13 seers respectively; B's 74 and 12 seers respectively; and C's 48 and 17 seers respectively. They collected 43 seers, 67 seers and 25 seers of honey. Shew how they can divide the honey equally among themselves, using only the three measures and subject to the condition that each should use his own measure when taking honey from the vessels of the other two.

Solution by A. Radhakrishna Aiyar, B. A. and others.

The distribution has to be made by each one of them successively taking out from the vessels of the other two, any number of his own measurefuls as may be necessary, and repeating this operation any number of times.

	A	B	C
Vessel ...	52	74	48
Collection...	43	67	25
Measure ...	13	12	17
Distribution.	45	45	45

Let a_b, a_c represent the total number of measures taken by B and C respectively from A's vessel; b_a, b_c, c_a, c_b being used similarly.

We have then the following equations to solve in positive integers

$$43+13\,(b_a+c_a)-12a_b-17a_c=45 \quad \text{I.}$$
$$67+12\,(a_b+c_b)-13b_a-17b_c=45 \quad \text{II.}$$
$$25+17\,(a_c+b_c)-13c_a-12c_b=45 \quad \text{III.}$$

Any two of these equations will give the third evidently, because if two of these persons after any number of operations get 45 seers each, the third will necessarily have the same.

The general solution of these indeterminate equations can easily be obtained.

The following is a solution.

$$a_b=2 \qquad b_a=2 \qquad c_a=0$$
$$a_c=0 \qquad b_c=4 \qquad c_b=4.$$

These operations must be conducted in such a manner that the quantity in the hands of each at any time does not exceed the capacity of his vessel and measure.

For example, they may be conducted as follows :—

		A.	B.	C.
	Capacity of vessel and measure.	65	86	65
	Capacity of measure.	13	12	17
1. A takes out once and C twice from B's vessel, with his own measure.	Beginning	43	67	25
	After 1 ...	56	20	59
2. B twice from A's and twice from C's.	After 2 ...	32	68	35
3. A once from B's, and C once from B's.	After 3 ...	45	38	52
4. B twice from C's.	After 4 ...	45	62	28
5. C once from B's.	After 5 ...	45	45	45

91. (*V. Ramaswami Aiyar, M. A.*) If the tangents of the angles of a triangle be whole numbers, the sides of the triangle are to one another as $\sqrt{5} : \sqrt{8} : \sqrt{9}$.

Solution by T. Ragunatha Row, B.A., and others.

Let x, y, z, denote the tangents of the angles of the triangle.

From Trigonometry, it is evident that $x+y+z=xyz$.

$$\therefore \quad x=\frac{y+z}{yz-1}=\text{a whole number.}$$

The positive integral solutions of this are $x=1$ or 2 or 3.
$y=2$ or 3 or 1.
$z=3$ or 1 or 2.

The tangents being in the proportion of $1:2:3$; the sines are to one another as $\sin(\tan^{-1}1) : \sin(\tan^{-1}2) : \sin(\tan^{-1}3)$,

$$\text{or as} \quad \frac{1}{\sqrt{2}} : \frac{2}{\sqrt{5}} : \frac{3}{\sqrt{10}}$$

$$\text{or as} \quad \sqrt{5} : \sqrt{8} : \sqrt{9}.$$

$\therefore$ the sides are to one another as $\sqrt{5} : \sqrt{8} : \sqrt{9}$.

Questions for Solution.

111. (*K. C. Ramamurti.*) Find the locus of the intersection of two strings connecting together diagonally two up-right poles of given lengths.

112. (*S. Padmanabha Aiyar, B. A.*) Two particles are projected from the same point and with the same velocity, but at different instants, in a smooth circular tube of small bore, whose plane is vertical. Shew that the line joining them always touches a circle.

113. (*C. S. Mahadeva Aiyar, B. A.*) T is a point in the minor axis of an ellipse and CD is a diameter parallel to a tangent from T. Shew that the axes of the hyperbola passing through T and having S and the tangent at A for a focus and corresponding directrix are in the ratio of the co-ordinates of D.

114. (*G. Padmanabhan.*) Solve the equation :—

$$8^{x+1}+(4^{x+1})^3=12.$$

115. (*K. V. Natesa Aiyar, B. A.*) If $a+b+c=0$, $ab+bc+ca=p$, $abc=q$, and $a^n+b^n+c^n=S_n$, shew that

$$S_n=q^r S_{n-3r}-{}_rC_1 . q^{r-1} . p . S_{n-3r+1}+{}_rC_2 . q^{r-2} p^2 . S_{n-3r+2}-$$
$$\ldots\ldots \text{ to } (r+1) \text{ terms.}$$

116. (*R. Ramachandra Row, B. A.*) Circles POF and POE are drawn orthogonal to the circles PBA and PCA meeting them at F and E. The chord BC is drawn through P perpendicular to EF. Show that the points A,B, C,O are concyclic.

117. (*S. Ananthanarayana Iyer*).

If $(p+q+r)(p+q+s) = (r+s+p)(r+s+q)$, then each expression $= (p-r)(p-s)(q-r)(q-s)(p+q-r-s)^{-2}$.

118. (*J. Weir, M. A.*) In the year 1895 Easter Day fell on April 14th. In what year will it next fall on April 14th ?

119. (*T. R. Venkatasami Naidu, B. A.*) Show that the following problem is wrong, pointing out what error in reasoning makes it appear to be correct. Also solve it taking $\frac{5}{2}$ and $\frac{5}{4\sqrt{2}}$ instead of $\frac{3}{2}$ and $\frac{3\sqrt{3}}{4\sqrt{2}}$.

" A ray is incident on a refracting sphere whose refractive index is $\frac{3}{2}$, at an angle whose sine is $\frac{3\sqrt{3}}{4\sqrt{2}}$. Shew that if the ray be refracted into the sphere, that portion of it which emerges after having been twice internally reflected will be in the same direction as the original ray. "

120. (*C. K. Balasubramanian.*) Ash saplings after five years' growth are worth 1*s.* 3*d.* and increase in value 1*s.* 3*d.* each year afterwards. For their growth they require each twice as many square yards as the number of years they are intended to grow before cutting. A plantation is arranged such that each year the same number may be ready for cutting. Find the greatest annual income which can be obtained per acre, allowing 20 per cent. for expenses.

SPORTS.

FOOTBALL.

Old *v.* Present Kumbakonians.

This match was played on Saturday the 21st when most of the old players were present. They took two or three of the present students to make up their eleven and the match commenced at 4-45 P.M. The old students were hard pressed during the first half time ; but during the 2nd half, the ball played equally on both sides. The old students' defence was splendid and consequently the present eleven got only one goal—that too, after much difficulty and fierce contest—although it had several chances. Their goal-keep also, warded off one or two good shots. They too had one or two chances, but they were easily defended by the goal-keep. The Old Boys hardly put to the test the strength of the present team's defence.

ATHLETIC SPORTS.

Presidency College:—These sports were held during the end of November, and the final events came off on December 2nd on the College Cricket ground. There was a fair gathering of ladies and gentlemen on the occasion, and among the latter were several distinguished old students of the college.

The following are the events and the names of the winners:—

Throwing down Single Stump	S. Venkataramanan.
Throwing the Cricket Ball	A. G. Nicholas (102 yards.)
100 *yards Flat Race*	1st, D. Parsons.
	2nd, S. Venkataramanan.
Slow Bicycle Race	D. C. McNair.
120 *yards Hurdle Race*	A. G. Nicholas.
Long Jump	1st, Perumal Naidu (17 feet.)
	2nd, D. Parsons.
Dribbling the Football	R. S. Sankaran.
High Jump	1st, H. D. Cormac (5ft. 0½in.)
	2nd, D. Parsons (4ft. 11¼ in.)
¼ *mile Flat Race*	1st, H. D. Cormac.
	2nd, D. Parsons.
Kicking the Football	R. S. Sankaran.
Putting the Weight (16 *lbs.*)	J. A. Paulie (32 ft. 6½ in.)
Stranger's Race 220 *yards*	E. Paul, Christian College.
1 *Mile Flat Race*	1st, N. C. Rangaswami.
	2nd, M. Srinivasa Aiyangar.
Tug-of-War	Senior F. A. Class.
Three-Legged Race	B. Hanumanta Rau and R. S. Sankaran.
Consolation Race	N. G. Parthasarathi.

The following events had been previously decided:—

One Mile Bicycle Race	1st, H. D. Cormac.
	2nd, D. C. McNair.
Gymnastics—Senior B. A.	T. Perumal Naidu.
Junior B. A.	A. Jagannathen Aiyar.
Senior F. A.	A. Sundaram.
Junior F. A.	B. G. Rangachari. Narasimham (*extra prize.*)
Tennis. Senior Singles	K. P. Vittal Rao.
Senior Doubles	K. P. Vittal Rao. / Kuhinni Menon.
Junior Singles	H. D. Cormac.
Junior Doubles	K. Achyuta Menon, Senior. / K. Achyuta Menon, Junior.

At the conclusion of the sports, the Prizes which had been provided principally by subscriptions from old students and members of the College Staff, were distributed by Mrs. Grose.

The Medical College:—This College held its sports after some years' interval with great success on the 9th instant. The following are the results.

Bicycle race, 5 Miles	Dixon.
Boat Race, ¾ Mile. 2nd year, 7' 5" ...	College Students.
Long Jump	1st, Hamlin (18 feet 3 inches.) 2nd, Parsons.
Pole Jump	Hamlin (9 feet 6 inches.)
Putting the Weight	1st, Westerhout (30 feet 8 inches.) 2nd, Gernen (29 feet 8 inches.)
Throwing the Cricket Ball	1st, S. G. Smith (92 yards.) 2nd, Treuter (89 yards.)
Tug-of-War	3rd year, College Students (5 minutes 45 seconds.)
90 *yards Dribbling the Foot Ball*	Hamlin (51 seconds.)
100 *yards Flat Race*	1st, Shauloo. 2nd, Hamlin.
High Jump	Westerhout (5 feet 2 inches.)
Three-Legged Race	Leonard and Callaghan.
¼ *mile Flat Race*	1st, Dixon (63 seconds.) 2nd, Shauloo.
Sack Race	Smith.
Hurdle Race, 120 *yards*...	Puviah.
All-comers Race	Coombes.
Obstacle Race	1st, Leonard. 2nd, Parsons.
Bun Race	Jackson.
1 *mile Flat Race*	1st, Callaghan. 2nd, Perumal (5 minutes 45 seconds.)
Consolation Race	D'Colto.
150 *yards College Servants Race*	Abraham.
Veterans Race	L. W. Pereira.

NOTIFICATIONS.

The Jamsetjee Nusserwanjee Tuta Endowment for the Higher Education and Advancement of Natives of India.

Two scholarships enabling the recipients to proceed to Europe for the acquirement of special knowledge in any department of science, art, or engineering, or for fitting themselves to enter the higher branches of Government service, are open for competition by selection to graduates who have displayed marked ability throughout their University career. One scholarship is confined to Parsees only, but the other is open to any other pure native of India. Applications containing full particulars as to age and University career should be made before March 1st to the Honorary Secretary of the Fund at Victoria Buildings, Fort, Bombay, who will, if required send copies of the terms and conditions of the Scheme to all duly qualified candidates.

BENGAL.

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